SHOUT
SHARE
IT

BULLETIN

OF THE

LIVERPOOL MUSEUMS

VOLUME I.

S. 160. A. 1.

BRITISH MUSEUM

Bulletin
of the
Liverpool Museums
UNDER THE CITY COUNCIL

EDITED BY
HENRY O. FORBES, LL.D.
DIRECTOR OF MUSEUMS

BRITISH MUSEUM
NATURAL HISTORY

Volume I.

LIVERPOOL
THE FREE PUBLIC MUSEUMS
HENRY YOUNG & SONS, 12, South Castle Street
and 23, Parker Street
1898

CONTENTS OF VOL. I.

Page
Introductory (Illustrated), 1
Catalogue of Parrots (Psittaci) in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson. (With two Plates.) 5
Crustacean Parasite on Flying Fish (Illustrated), 23
Feeding of young Trout, 24
Malapterurus electricus, 25
Cypriote Antiquities in Mayer Museum, 26
Seton-Karr Collection of Flint Implements from Egypt, 27
West African Masks (Illustrated), 27
"Medicine" at the Museums, 28
On an apparently new, and supposed to be now extinct, species of Bird from the Mascarene Islands, provisionally referred to the genus *Necropsar*. By Henry O. Forbes. (With Plate.) 29
Note on Two Species of Pigeon. H.O.F., and H.C.R., 35
Catalogue of the Cuckoos and Plantain-eaters (Cuculi) in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson, 37
On a Collection of Cast-Metal Work from Benin. By the Director of Museums. (Illustrated.) 49
The New Museums Extension Buildings: Laying of the Foundation Stone (Illustrated), 71
Description of a New Marine Spider from South Africa, collected by the Rev. N. Abraham and presented to the Derby Museum. By R. I. Pocock. (Illustrated.) 75
Crab-Gall on *Millepora*. By Prof. Sydney J. Hickson, F.R.S. (Illustrated.) 81
On the Type of the *Spotted Green Pigeon*, of Latham, in the Derby Museum (with Plate), 83
Note on *Turdinulus epilepidotus* (Temm.), 83
Note on a Rare Species of Cyanocorax—*C. heilprini* (with Plate), 85
Notes on some Marine Invertebrates from Hilbre Island, 85
Catalogue of the Picarian Birds (Pici): Puff Birds, Jacamars, Barbets, Toucans, Honey Guides, and Woodpeckers in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson, 87
On a Fragment of the Parcival of Wolfram von Eschenbach in the Mayer Museum. By Dr. R. Priebsch. (With four Plates.) 119

LIST OF ILLUSTRATIONS.

Portraits of XIIIth Earl of Derby, 2
Joseph Mayer, F.S.A., 2
Sir William Brown, 3
View of Free Public Museums, 1897, 4
Nestor norfolcensis, Psittaci, Plate I., *To face* 5
Coriphilus taitianus, Psittaci, Plate II., Fig. 1, " 9
Nasiterna nanina, Psittaci, Plate II., Fig. 2, " 9
Penella Parasitic on *Exocœtus*, 23

Page
West African Masks, Fig. 1, - - - - - - 27
Fig. 2, - - - - - - - 27
Fig. 3, - - - - - - - 28
Necropsar leguati, n. sp. Sturnidæ, Plate I, - - - - *To face* 29
Head, Wing and Leg of *Necropsar leguati*, - - - - - 34
Cast Metal Work from Benin—
Tobacco Pipe in Metal, Fig. 1, - - - - - - 49
Lid of Box, with Representation of King, or High Officer, attended by his Arm-bearers, Fig. 2, - - - - - - - 50
Supposed High Officer, with his Arm-bearers: a Plaque in the British Museum, Fig. 3, - - - - - - - 51
Figure of a Woman of High Rank, Fig. 4, - - - - - 52
Front and Side Views of Statuette of a Native with Flint-lock in his Hand, Figs. 5 and 6, - - - - - - - - 53
Holder for Carved Elephant's Tusks which stood on a Sacrificial Altar of the Juju-house in the King's Compound, Figs. 7 and 8, - - - 55
Hollow-cast Leopard, with Enamel Spots, Fig. 9, - - - - 58
Front, Side, and Back View of Statuette of Supposed King of Benin, - - Fig. 10 (*a*), (*b*), (*c*), - 60
Fig. 11 (*a*), (*b*), (*c*), - 61
Fig. 12 (*a*), (*b*), (*c*), - 62
Fig. 13 (*a*), (*b*), (*c*), - 63
View of Proposed Museums Extension and Technical Schools, - - *To face* 71
Paradesis tubicola, Fig. 1. ♀, - - - - - -
Fig. 2. Front of Head, showing Arrangement of Eyes, - - 76
Fig. 3. View of Vulva, - - - -
Crab-Gall on *Millepora*, - - - - - - - - 80
Calœnas maculata, Columbæ, Plate I., - - - - - *To face* 83
Cyanocorax heilprini, Corvidæ, Plate I., - - - - - " 85
Facsimile of Parcival, A, page I. Recto, - - - -
B, " I. Verso, - - - -
C, " II. Recto, - - - - " 119
D, " II. Verso, - - - -

AUGUST, 1897.

VOL. I. No. 1.

BRITISH MUSEUM NATURAL HI…

K

Bulletin

of the

Liverpool Museums

Under the City Council.

CONTENTS.

PAGE
Introductory - - - - - - 1
Portraits of XIIIth Earl of Derby; Joseph Mayer, F.S.A.; Sir William Brown.
View: Free Public Museums.
Catalogue of Parrots in the Derby Museum. By H. O. FORBES, and H. C. ROBINSON 5
Plates of Nestor norfolcensis; Coriphilus taitianus; Nasiterna nanina.
Museum & Aquarium Notes—
Crustacean Parasite on Flying-Fish (*illustrated*) - - - - 23
Museum and Aquarium Notes (*contd.*)—
Feeding of Young Trout - - 24
Malapterurus electricus - - 25
Recent Acquisitions by Mayer Museum:
1. Cypriote Antiquities - - 26
2. Seton-Karr Collection of Flint Implements, from Egypt - 27
3. West African Masks (*illustrated*) - - - - 27
'Medicine' at the Museums - - 28

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, SOUTH CASTLE STREET,
AND 23, PARKER STREET.
ISSUED 4th AUGUST.

Bulletin of the Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

Vol. I. AUGUST, 1897. No. 1.

Introductory.

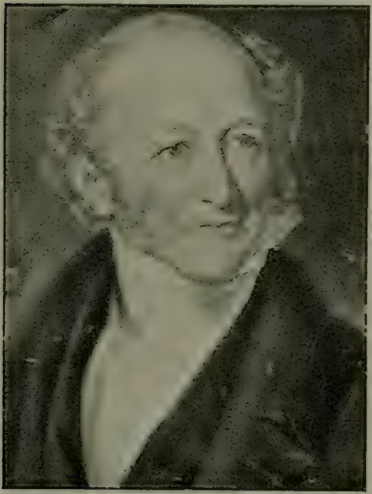
The *Bulletin of the Liverpool Museums*, published by authority of the Museums Committee of the City Council, of which the present is the first number, is intended to make known the contents of the Municipal Museums, to publish the results of the investigations carried on in the Laboratories attached to them, and to record the observations made on the animals living in the Aquarium.

The Museums consist of The Derby Museum and The Mayer Museum, and a few words on their scope and history seem called for in this first number of the *Bulletin.*

The Derby Museum contains the Zoological, Botanical, Geological, and Mineralogical Collections, and has attached to it an Aquarium, containing both marine and fresh water animals, from temperate and tropical latitudes. The Mayer Museum contains the Archæological, Ethnographical, and Ceramic Collections. As both are daily open free to the public, they are conjointly known as *The Free Public Museums.*

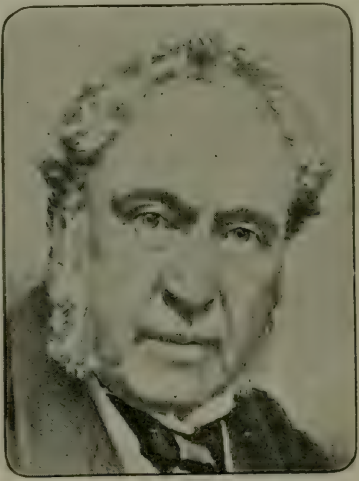
The Derby Museum commemorates, in its name, the munificence of the Thirteenth Earl of Derby, who bequeathed to the city (in 1851), in addition to other natural history specimens, his celebrated collection, partly mounted and partly in skins, of Mammals and Birds.

While still young, he became, as Lord Stanley, well known for the collection of living animals he had begun to bring together, during his father's lifetime, in the extensive grounds of Knowsley Hall, as well as by his original contributions to Ornithology, and for the deep interest he took in everything relating to Natural History; so that, long before he succeeded to the Earldom, his reputation, as an accomplished Zoologist, had become widely established in the scientific world. In 1828 he was elected to fill the Presidential chair of the Linnean Society of London, which he held for six years, while from 1831 down to the time of his death in 1851, he filled the same distinguished office in the Zoological Society. After his accession to the title in 1834, Lord Derby devoted himself, with increased ardour, to the advancement of his favourite science, and to the extension of his collections, not only through the agents and correspondents he already had in the four quarters of the globe, but by equipping and sending out many naturalists and experienced collectors, to specially promising, and unexplored regions of both hemispheres. From all these sources he was constantly receiving at Knowsley, so many new and rare living animals of every sort, that the Knowsley Menagerie was, at its dispersal in 1851, celebrated, far and wide, as one of the largest and finest zoological collections in Europe. This Vivarium was splendidly housed in various parts of the grounds; in commodious sheds and sheltered paddocks, as well as by the margin of artificial lakes and in spacious Aviaries. In the last there appear to have been, of Parrots alone, as many as one hundred and fourteen specimens, belonging to sixty nine species, alive on the 1st of September, 1848.

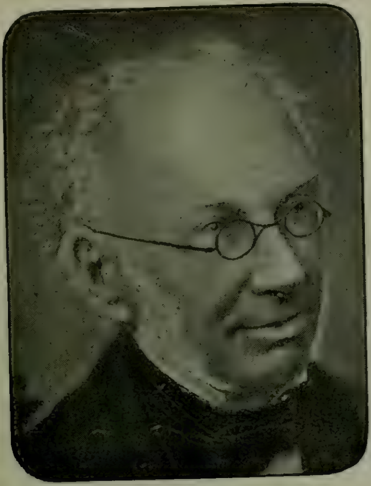

The XIIIth Earl of Derby.

All the animals that died in the Menagerie were carefully preserved, either mounted or in skin; the very large specimens being presented to the National Collection, while the rest were added to Lord Derby's private museum. To the increase of this part also of his collection, great attention was paid by Lord Derby, and it grew rapidly through his constant purchases as well as by the specimens sent to him, in large numbers, by his foreign correspondents, by distinguished travellers, and by collectors, and not least as the result of the expeditions he equipped. Many of these acquisitions were naturally the types of species new to science, and were described either by Lord Derby, or by naturalists to whom he entrusted them for that purpose. Not a few, however, remained for years in his cabinets, apparently unrecognised as unknown to science, and were described from examples, in other collections, obtained long subsequently. So, although the original specimens of several species are in the collection, they have unfortunately missed being the types. This entire museum, containing many thousands of specimens, it was, which, when handed over to the city by the Fourteenth Earl of Derby in 1851, formed the nucleus of our Natural History Department, whose treasures, many of them of great historical interest, are as yet but very imperfectly known outside the Museum.

The Mayer Museum, in like manner, commemorates, in its name, the liberality and public spirit of Joseph Mayer, F.S.A., a goldsmith of Liverpool, who presented to the city, during his life-time, in 1867, a collection but little less valuable and extensive than Lord Derby's.


Joseph Mayer, F.S.A.

Mr. Mayer devoted a large fortune to the acquisition, whenever he had the opportunity, of objects valuable to History, Archæology and Art. His museum was specially rich in Pottery, and in Assyrian, Egyptian, Greek and Mediæval antiquities. His gift is remarkable not only as being the collection of one individual, but in containing, notwithstanding its great diversity, so little, owing to Mr. Mayer's wonderful discrimination and judgment, that is not of the highest value. Many, indeed, of the objects given by Mayer are unique, or beyond purchase except by a National museum, such as, to mention only one or two, the Fejerváry Ivories, the Brian-Faussett collection of Anglo-Saxon antiquities, the Mexican Codex (M 12014), and the collection of Wedgwood Ware.



Sir William Brown.

The Derby bequest, opened to the public in March 1853, was at first exhibited in rooms, in a comparatively small house, in Duke Street, along with the nucleus of the Public Library, until the liberality of Sir William Brown provided for it a fitting home in 1860, by erecting, and presenting to the city, the stately edifice which now shelters it, and part of the Library. On the arrival of Mr. Mayer's collection in 1867, a large square central court, in the west wing, with three tiers of galleries surrounding it, was entirely set apart for the Mayer Museum.

The acquisitions, by donation and purchase, to both the Derby and the Mayer Museums have, within the past few years, been so large, that there is now no longer room, not to exhibit them only, but even to store them. An extension has recently, therefore, been designed and is shortly to be erected, which will provide, on two floors, wide continuous and undivided galleries, surrounding a central court, to permit, what is possible in but few museums, the exhibition of the biological groups in their genetic relationships, as nearly as that can be done in a linear arrangement.

Between the years 1876 and 1891, several slender opuscula, dealing with portions of the collections, were issued from the Museums, under the name of 'Museum Reports.' As, however, there is, at the end of every year, presented to the City Council, by the Committee, an 'Annual Report,' the similarity in name of the two publications, has given rise to considerable confusion. The *Bulletin*, therefore, will supersede the 'Museum Reports' and whereas the latter were issued at long and irregular intervals, and are, (with the exception of the last in the annexed list), reprints of papers originally read before *The Literary and Philosophical Society of Liverpool*, and published in its 'Transactions,' the *Bulletin* will be issued at more frequent intervals, and will contain articles not elsewhere published illustrated, when necessary, with plain or coloured plates, and cuts in the text.

The following are the titles of the 'Museum Reports':—

(1) The Mollusca of the 'Argo' Expedition to the West Indies. By the Rev. H. H. Higgins, M.A. 1877.

(2) Metamorphoses of Lepidoptera from San Paulo, Brazil. By E. Dunkinfield Jones, C.E., with nomenclature and descriptions of new forms by Frederick Moore, F.Z.S., and an introductory note, by T. J. Moore, C.M.Z.S., Curator of the Museum. 1883.

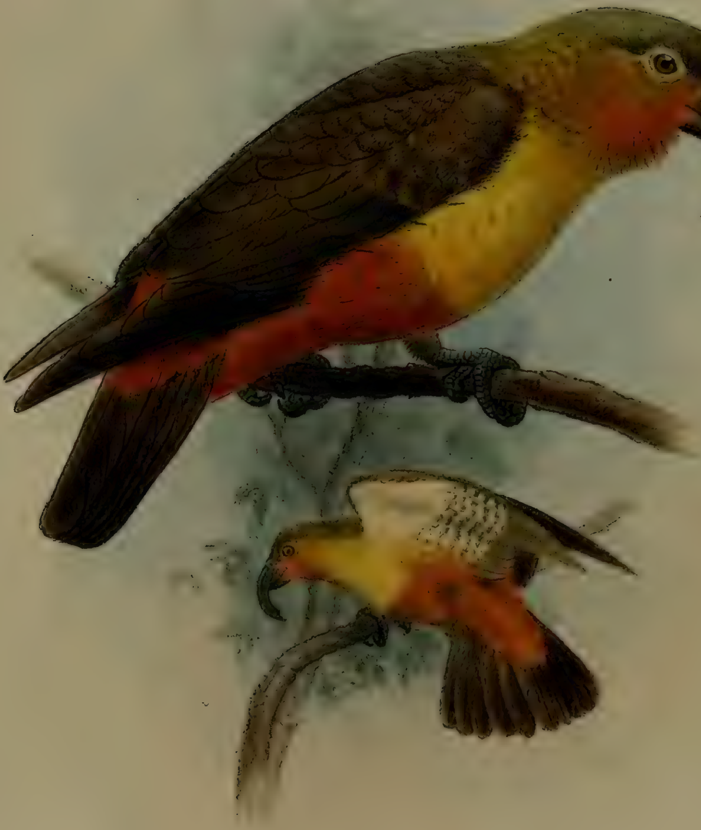
(3) The Turvey Ammonite, a paper read before *The Literary and Philosophical Society of Liverpool.* By the Rev. H. H. Higgins, M.A. 1883.

(4) Metamorphoses of Lepidoptera from San Paulo, Brazil. By E. Dunkinfield Jones, C.E., with nomenclature and description of new forms, by Frederick Moore, F.Z.S. Second series. 1884.

(5) Translation of Hieratic Papyri, Mayer A and B. By Wilhelm Spiegelberg, Stud. Phil., Strassburg. 1891.

THE FREE PUBLIC MUSEUMS—1897.

[illegible]H MUSEUM [illegible]



1/3

J. Smit del. et lith

Mintern Bros. imp

Nestor norfolcensis. Pelz.

Catalogue of the Parrots (Psittaci) in the Derby Museum.

By Henry O. Forbes and Herbert C. Robinson.

Note.—*The arrangement and nomenclature followed in this Catalogue are those adopted in the 'Catalogue of Birds in the British Museum,' Vol. XX., by Count T. Salvadori. All the species known up to the end of 1896 are enumerated, the names of those that are desiderata to the collection, being printed in Grotesque type.*

After the specific name follows a numeral, signifying the number of specimens of the species in the Museum; the sex, of as many as are determined, is next designated, then the habitats, and finally the month of capture, where those have been noted. Where these data are omitted, or given for only some of the specimens, it is to be understood that no information exists on the subject in regard to the others, as is unfortunately the case in a large number. Type specimens are marked **T.**

NESTORIDÆ.

NESTOR, *Wagl.*

notabilis, *Gould.* Three. New Zealand.

meridionalis (*Gm.*). Fifteen. New Zealand.

No. 1 (=17208 Tristram Coll.) is darker on the back, the red collar broader behind and the red on the abdomen brighter, than in the North island form; wings tinged with bluish.

esslingi, *Souancé.*

productus, *Gould.* One. Philip Island.

norfolcensis, *Pelz.* One. (Plate I.) (= *N. productus,* Gould Tristr., Cat. Coll. Birds, p. 79). Cf Ibis, 1892, p. 557.

Believed to be the only existing specimen of the species. The corneous covering to the upper mandible is lost; and in the plate has been restored from von Pelzeln's figure (Sitzb. K. Akad. Wiss. 1860, xli. p. 322), made from the drawing of the bird found among Ferdinand Bauer's papers. The variability of the bill in Parrots is well known; and as there is no record as to the form of the upper mandible in this specimen, we are in ignorance whether or not it varied from that of *N. productus.* On account of the absence of any, save a suspicion, of bars on the tail, we have followed Salvadori and retained the name *N. norfolcensis* for the specimen, although it presents no characters, other than those easily due to age or sex, by which, in our opinion, it can with certainty be specifically separated from *N. productus.* We are supported in this view by Mr. J. E. Harting, F.L.S. (Proc. Linn. Soc., July 17th, 1897).

LORIIDÆ.

CHALCOPSITTACUS, *Bp.*

ater (*Scop.*). One. ♂. Salwatty, June.

This bird has very dark maroon flanks, with one bright scarlet feather on the metatarsus, and the edge of the forehead showing dark red feathers, thus agreeing with the Mysol bird. *C. bernsteini* will probably prove to be a synonym of *C. ater.*

bernsteini, *Rosenb.;* insignis, *Oust.;* stavorini (*Less.*); duyvenbodei, *Dubois.*

scintillatus (*Temm.*). One. N. Guinea (Fly River).

Vertex, occiput, sides of head and chin, *not* black, as according to Salvadori, but dark red.

chloropterus, *Salvad.* One. Port Moresby.

EOS, *Wagl.*

cyanogenys, *Bp.*

T reticulata (*S. Müll.*). Four. 2♂. Timor-laut, September.

No. 4 (=204b Lord Derby's Coll.) is the Type of *Blue-necked Lory,* Lath., Gen. Hist., ii. p. 136 (1822).

histrio (*Müll.*). Three. 2♂, ♀.

histrio, *sub. sp.* talautensis, *Meyer & Wiglesw;* challengeri, *Salvad.*

cardinalis (*G.R.Gr.*). Five. 4 ♂. Solomon Islands (Guadalcanar; Rendova; Bugotu.

rubra (*Gm.*). Six. Ceram; Moluccas.

semilarvata, *Bp.*

wallacei (*Finsch*). Two.

insularis, *Guillem.*

T **riciniata** (*Bechst.*). Three. 2 ♂. Batchian; Ternate.

No. 1 (=12764 Tristr. Coll.), is Type of *Lorius isidorii*, Swains., Zool. Ill. (2) i. pl. viii. (1829). Ex Zool. Soc. Coll.

rubiginosa (*Bp.*). Two. ♀. Caroline Islands (Ponapé).

fuscata, *Blyth.* Four. 3 ♂. New Guinea (Fly River).

No. 4 has yellow where the others have red.

LORIUS, *Vig.*

hypoenochrous, *G.R.Gr.* Four. 3 ♂. New Britain (Ferguson Bay).

lory (*Linn.*). Three. ♀. New Guinea.

erythrothorax, *Salvad.* Three. ♂.

erythrothorax, *sub. sp.* rubiensis, *Meyer;* jobiensis (*Meyer*); salvadorii, *Meyer.*

cyanauchen (*S. Müll.*). One.

Apparently collected by S. Müller, and possibly a Co-type of species.

domicella (*Linn.*). Five. ♂, 2 ♀. Amboina.

chlorocercus, *Gould.* Three. 3 ♂.

No. 3 (=2918 Tristr. Coll.), collected by E. L. Layard, has more yellow on breast than the typical bird, with bases of neck feathers behind yellow.

tibialis, *Sclat.*

garrulus (*Linn.*). One. Moluccas.

flavo-palliatus, *Salvad.* (No. 1 = *L. garrulus*, Linn., Tristr., Cat. Coll. Birds, p. 73.) Four. 2 ♂, ♀. Moluccas.

CALLIPTILUS, *Sund.*

T **solitarius**, (*Lath.*). Six. ♂. Fiji; 'South Seas.'

Nos. 5 and 6, 'South Seas,' are the Types of *Solitary Parrot*, Lath., Gen. Hist. ii., p. 190 (1822).

VINI, *Less.*

australis (*Gm.*). Ten. ♂, ♀; 6 sterna. Samoa.

kuhli (*Vig.*). Four. Austral and Fanning Islands.

CORIPHILUS, *Wagl.*

taitianus (*Gm.*). Six. Tahiti. (Plate II., fig. 1.)

Nos. 5 and 6 =5639 and 5646, Lord Derby's Coll.; the former is albino, and the latter, which we figure, entirely blue, except for a white speck on the throat.

ultramarinus (*Kuhl*). Eight. Marquesas (Nukuhiva).

No. 6 (=706a, Lord Derby's Coll.), is an authentic specimen of *C. dryas*, Gould.

TRICHOGLOSSUS, *Vig. & Horsf.*

hæmatodes (*Linn.*). Four. 2 ♂, ♀. Timor, June.

forsteni (*Temm.*). One. [Amboina.]

Apparently a slightly immature bird. The blue of the forehead corresponds in shade exactly with that of a specimen in this Museum of a male *T. djampeanus*, Hartert, of Everett's collecting; the band behind the yellowish green ring is indicated by partially purple feathers, which show that its breadth will be equally extensive with that in *T. djampeanus*. No marked green can be seen in the hinder part of the crown, but in certain lights there is a *nuance* of that colour, which is equally perceptible in *T. djampeanus;* no green in the middle of the abdomen. The wings, measuring 133 mm., are slightly shorter than in Hartert's sub-species. In the figure of *T. forsteni* in Mivart's Monograph the yellow-green ring, though described in the text, has been entirely omitted.

forsteni, *sub. sp.* **djampeanus**, *Hartert.* One. Djampea Island.

cyanogrammus, *Wagl.* Two. Buru. Amboina.

massena, *Bp.* Nine. ♀, 3♂. S.E. New Guinea. New Hebrides. Solomon Islands (Bugotu; Makira). Loyalty Islands.

flavicans, *Cab. & Reich.*; nigrigularis, *G.R.Gr.*; coccineifrons, *G.R.Gr.*; mitchelli, *G.R.Gr.*; cæruleiceps, *D'Alb. & Salvad.*

novæ hollandiæ (*Gm.*). Ten. Australia (N. S. Wales).

verreauxius, *Bp.*

rubritorquis, *Vig. & Horsf.* Four. 2♀. N. Australia (Port Essington).

rosenbergi, *Schleg.*

ornatus (*Linn.*). Four. ♀. N. Celebes.

PSITTEUTELES, *Bp.*

flavoviridis (*Wall.*).

meyeri (*Wald.*). Two. ♂. Celebes (Minahassa).

meyeri, *sub. sp.* bonthainensis, *Meyer.*

euteles (*Temm.*). Six. 3♂, ♀. Timor. Flores.

Some Timor specimens are darker and greener on the head than the specimen from Flores, collected by Wallace.

weberi, *Büttik.*

chlorolepidotus (*Kuhl*). Nine. ♂. Australia (N.S. Wales; Queensland).

PTILOSCLERA, *Bp.*

versicolor (*Vig.*). Six. ♂, ♀ (jr). N. Australia (P. Essington; Somerset, Cape York).

GLOSSOPSITTACUS, *Bp.*

goldiei (*Sharpe*); diadematus, *Verr. & Des Murs.*

concinnus (*Shaw*). Twelve. 2♀. Australia (Victoria). Tasmania.

porphyrocephalus (*Dietr.*). Seven. ♂. W. Australia (Swan River); S. Australia.

pusillus (*Shaw*). Nine. ♂, ♀. Australia.

HYPOCHARMOSYNA, *Salvad.*

wilhelminæ (*Meyer*).

placens, *Temm.* Eleven. 6♂, 5♀. Ké Ids. Salwatty. New Guinea.

subplacens (*Sclat.*). Seven. 4♂, 3♀. New Britain (Blanche Bay); Duke of York Islands (Mioko).

rubrigularis (*Sclat.*); rubronotata (*Wall.*); kordoana (*Meyer*).

T **aureocincta** (*Layard*). Three. ♂, ♀. Fiji (Ovalau, 13/6/75; Taviuni; Rewa).

No. 1 (=2774 Tristr. Coll.) is the Type of the species.

palmarum (*Gm.*). Four. 2♂, 2♀. New Hebrides (Vaté).

pygmæa, (*Gm.*).

Under *Pygmy Parrakeet* in Lord Derby's copy of Latham's Gen. Syn., i., pt. 2, p. 256, No. 60 (1787), occurs the following note in Lord Derby's handwriting. "My specimen (marked as this species by Dr. Latham) came from New Holland, and answers well to this description, except in having a red band from eyes to the bill and over the front." This specimen has unfortunately disappeared; the probability that the unique Vienna specimen is a female of *H. palmarum*, as considered by Mr. E. Layard, and probably young, is increased by this observation.

CHARMOSYNOPSIS, *Salvad.*

pulchella (*G.R.Gr.*). Four. 3♂, ♀. New Guinea.

T **margarethæ** (*Tristr.*). One. ♀. Solomon Ids. (San Cristoval, Makira).

Type of species; type of male lost—stolen, it is said, by a sweep!

CHARMOSYNA, *Wagl.*

papuensis (*Gm.*). Four. New Guinea.

stellæ, *Meyer.*

josephinæ (*Finsch*). Two. ♂, ♀. New Guinea.

OREOPSITTACUS, *Salvad.*

arfaki (*Meyer*); grandis, *Grant.*

CYCLOPSITTACIDÆ.

NEOPSITTACUS, *Salvad.*

muschenbroeki (*Rosenb.*). One. ♂. New Guinea.

We cannot help thinking that *N. pullicauda*, Hartert, must become a synonym of this species.

pullicauda, *Hartert.*

iris (*Temm.*). Three. Timor, June.

One of these specimens, No. 2, shows red through the blue of the hinder part of the pileum, as if the whole blue would change completely to red; while another is intermediate between true *N. iris* and the specimen first spoken of. It is doubtful whether *N. rubripileum* will prove a good species.

rubripileum, *Salvad.*

CYCLOPSITTACUS, *Rchnb.*

salvadorii, *Oust.*; edwardsi, *Oust.*

desmaresti (*Garn.*). Three. New Guinea.

occidentalis, *Salvad.* One. ♂. New Guinea.

blythi, *Wall.*; cervicalis, *Salvad. & D'Alb.*; maccoyi, *Gould.*

coxeni, *Gould.* Two. Queensland.

diophthalmus, *Homb. & Jacq.* One. ♂. New Guinea (Arfak).

aruensis (*Schleg.*). Two. ♂, ♀. Aru Islands.

virago, *Hartert*; gulielmi-tertii (*Schleg.*).

suavissimus, *Sclat.* Two. ♂, ♀. New Guinea.

melanogenys (*Rosenb.*); nigrifrons, *Rchnw.*; amabilis, *Rchnw.*

CACATUIDÆ.

CACATUINÆ.

LOPHOPSITTACUS, *Newton.*

mauritianus (*Owen*). (Extinct.)

MICROGLOSSUS, *Geoffr. St. Hil.*

aterrimus (*Gm.*). Four. New Guinea.

salvadorii, *Meyer.*

CALYPTORHYNCHUS, *Vig. & Horsf.*

baudini, *Vig.* Four. ♂, ♀. West Australia. April, May.

funereus (*Shaw*). Four. Australia.

xanthonotus, *Gould.* Six. ♂, 2♀. Tasmania. September.

banksi (*Lath.*) Six. 2♂, 4♀. Skeleton. Percy Island.

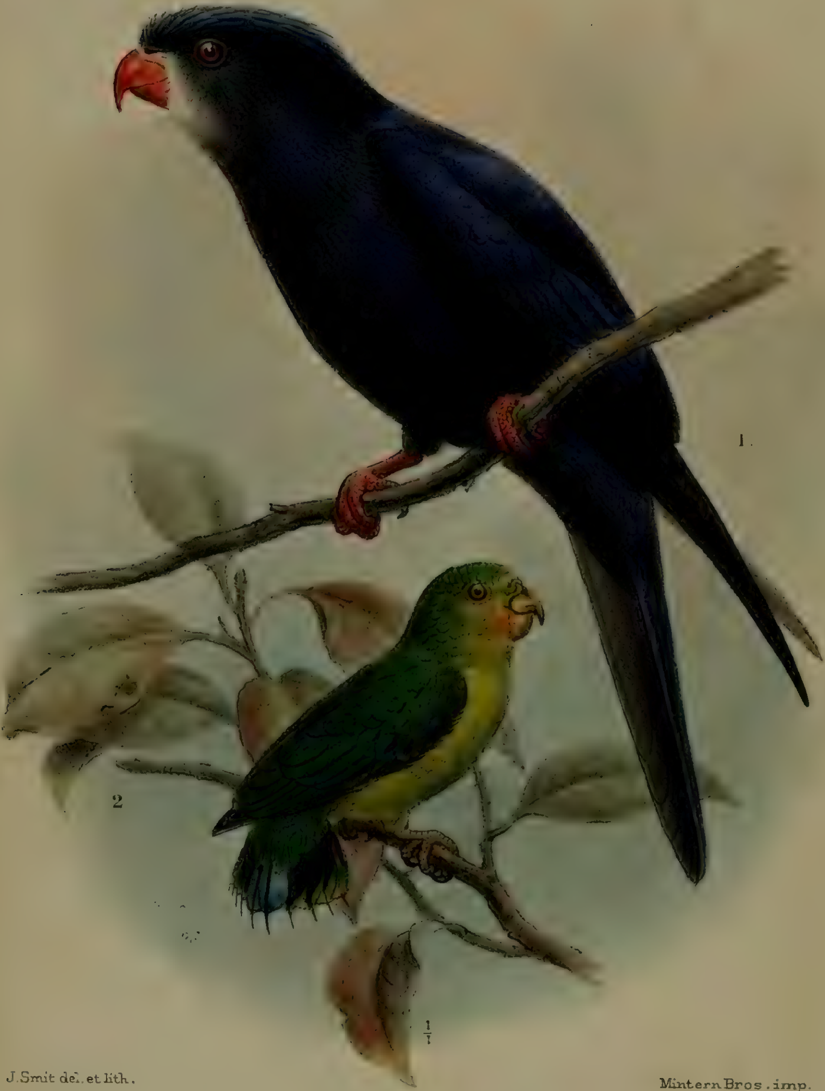
macrorhynchus, *Gould.* One. ♀ (jr.). N. Australia (P. Essington).

This young female, collected for Gould in 1844, is indistinguishable from female *C. banksi*, except for a slightly more powerful lower mandible.

stellatus, *Wagl.* Two. ♂, ♀. W. Australia (Perth, March).

viridis (*Vieill.*). Twelve. 5♂, 4♀. S. Australia (N. S. Wales, Shoalhaven; Cumberland Co.)

BRITISH MUSEUM
NATURA[illegible]



J. Smit del. et lith.

Mintern Bros. imp.

1. *Coriphilus taitianus*, Gm.

2. *Nasiterna nanina*. Tristr.

CALLOCEPHALON, *Less.*

galeatum (*Lath.*). Seven. 2♂, ♀. Australia.

CACATUA, *Vieill.*

galerita (*Lath.*). Seven. ♂, ♀. N. Australia (Somerset, Cape York; Port Essington). S. Australia (N. S. Wales). Tasmania.

Nos. 1, S. Australia, 2, Somerset, and 5, Port Essington are smaller, and have less yellow on ear coverts than typical *C. galerita*, thus resembling *C. triton.*

triton (*Temm.*). Two. Salwatty. New Guinea (Port Moresby).

The Port Moresby specimen, No. 2, is a much larger form than No. 1 from Salwatty, and it is doubtful whether it is not *C. galerita*. Except, indeed, that it has little yellow on the cheeks, and is slightly smaller, it is quite similar to that species.

parvula (*Bp.*). Two. Flores.

sulphurea (*Gm.*). One. ♂.

sulphurea, *sub. sp.* **djampeana**, *Hartert.*

T **citrinocristata** (*Fras.*). One.

A Co-type or authentic specimen of the species. The Type, which was in the Zool. Soc. Coll., has disappeared. A third Co-type was in Dublin in 1844.

leadbeateri (*Vig.*). Five. W. Australia (Swan River).

alba (*P. L. S. Müll.*). Two. ♂. Gilolo; Moluccas.

molluccensis (*Gm.*). Three. 2♂, ♀; Skeleton. Ceram. Moluccas.

ophthalmica, *Sclat.* One. ♂. New Britain (Blanche Bay, June).

gymnopis, *Sclat.*

sanguinea, *Gould.* One. [Port Essington.]

goffini (*Finsch*). (= *C. sanguinea*, Gould, Tristr., Cat. Coll. Birds, p. 72). One. Timor-laut.

ducorpsi (*Jacq. & Pucher.*). One. ♂. Solomon Islands (Guadalcanar).

hæmaturopygia (*P.L.S. Müll.*). Four. 2♂, ♀. Philippine Islands (Placer).

roseicapilla, *Vieill.* Three. ♂. N. S. Wales.

LICMETIS., *Wagl.*

nasica (*Temm.*). Three. Australia.

pastinator, *Gould.* One. W. Australia.

CALOPSITTACINÆ.

CALOPSITTACUS, *Less.*

novæ-hollandiæ (*Gm.*). Ten. 4♂, 5♀. South Australia (Adelaide; N. S. Wales).

PSITTACIDÆ.

NASITERNINÆ.

NASITERNA, *Wagl.*

bruijni, *Salvad.* One. ♂. New Guinea (Arfak Mts). *Ex Challenger Coll.*

pygmæa (*Quoy & Gaim.*). (No. 2 = *N. misoriensis*, Salvad., Tristr., Cat. Coll. Birds, p. 73.) Four. 2♂, 2♀. New Guinea.

finschi, *Ramsay.* Two. 2♀. Solomon Ids. (San Cristoval, Makira).

T **nanina**, *Tristr.* (Pl. II., fig. 2.) One. ♀. Solomon Ids. (Isabel, Bugotu).

Type of species (Tristr., Ibis, 1891, p. 608).

keiensis, *Salvad.*; **aolæ**, *Grant*; **misoriensis**, *Salvad.*; **maforensis**, *Salvad.*; **beccarii**, *Salvad.*

pusio, *Sclat.* Four. 2♂, 2♀. New Britain (Blanche Bay); Duke of York Island, June, August.

CONURINÆ.

ANODORHYNCHUS, *Spix.*

hyacinthinus (*Lath.*). One and Skeleton.
leari, *Bp.*; glaucus (*Vieill.*).

CYANOPSITTACUS, *Bp.*

spixi (*Wagl.*). One. Brazil.

ARA, *Cuv.*

ararauna (*Linn.*). Two.
caninde (*Wagl.*)
macao (*Linn.*). Four. 2 ♀. Honduras.
chloroptera, *G.R.Gr.* One. ♂. Brazil.
tricolor (*Bechst.*). One. ♀. [Mexico.]
militaris (*Linn.*). Two. ♂, ♀. S. America.
ambigua (*Bechst.*).
T **rubrigena**, *Lafresn.* Two. Bolivia.

Types of *Ara bridgesi*, Fraser, MSS. in "the published Catalogue of Birds in the Knowsley Museum" (*note in Fraser's MS. Catalogue*). Any information as to this published Catalogue would be welcome.

severa (*Linn.*). Five. Surinam. Brazil. Bolivia.
maracana (*Vieill.*). Three. ♂, ♀. Brazil (Rio de Janeiro).
couloni, *Sclat.*
auricollis (*Cass*). Three. Brazil.
macavuanna (*Gm.*). Three. ♂. S. America.

In two specimens the red on the lower abdomen is specially noticeable.

nobilis (*Linn.*). Two. Brazil.
hahni (*Souancé*). Two. ♀. Brazil.

No. 1 is almost as large as *A. nobilis*, but in the colour of its bill it agrees with *A. hahni.*

RHYNCHOPSITTACUS, *Bp.*

pachyrhynchus (*Sw.*). Three. Mexico.

CONURUS, *Kuhl.*

acuticaudatus (*Vieill.*). Four. [Chili.]
hæmorrhous, *Spix.*
T **guarouba** (*Gm.*). Three. 2 ♂ (?). ♀ (?). Cayenne.

No. 2, Ex Mus. Bullock, is one of the Types of *Yellow Maccaw Parrot*, Lath., Gen. Hist. ii., p. 144 (1822). Another, from the Bullock Museum, was in Lord Derby's Collection, but has disappeared.

solstitialis (*Linn.*). Three. 2 ♂.
jendaya (*Gm.*). Three. ♀ juv.
auricapillus (*Licht.*). Five. ♂. Brazil (Rio Janeiro).
nenday (*Vieill.*). One. Paraguay.
weddelli, *Deville.* One.

Collected by C. Bridges.

mitratus, *Tsch.* Two. Bolivia.
rubrolarvatus, *Mass. & Souancé*; frontatus, *Cab.*; finschi, *Salvad.*
wagleri, *G.R.Gr.* One.
euops (*Wagl.*). One.
chloropterus (*Souancé*). One.
leucophthalmus (*Müll.*). Two. 2 ♀. Guiana.

We are uncertain whether these specimens should be assigned to *C. leucophthalmus* or to *C. leucogenys*; for it is very difficult to decide from Salvadori's description in the B. M. Cat. of Birds. In his Key to the species of the genus with *yellow greater under wing-coverts*, he distinguishes *C. leucophthalmus* from *C. callogenys*, by its dark green colour, its smaller size and its having the cheeks green, without red patches, *except* *accidentally*, on their lower parts. No. 1 is very dark green, while No. 2 is of a general yellowish-green colour and has fewer red spots on its head and cheeks. In length both specimens are under 14·5 (they measure about 13) inches; the wing of No. 1, is 6⅝ inches, of No. 2, 6⅞ inches; tail of No. 1 damaged, of No. 2, 6·5 inches; tarsus of No. 1, ·75; of No. 2, ·8; bill of No. 1, 1·2, and of No. 2, 1·1 inch (measured from tip to cere by callipers). The size increases with age, no doubt, till maturity; while the dimensions of a dry skin vary much with the make up; and how can it be determined when the spots are accidental, or constant, or if their absence be not due to immaturity? Both specimens are females (Salvadori, by the way, omits to say anything about the differences between the sexes), and No. 1 is from Guiana. *C. leucophthalmus* while it extends over a very large part of northern S. America, overlaps on the west, the distributional area of *C. callogenys*, by several hundred miles.

Among the MSS. left by the 13th Lord Derby, to which, through the kindness of the present Earl, I have had access, I find the following notes with reference to No. 1:—"The length of this specimen, which was for some time alive in the Aviary, was 13 inches. Latham gives to his species only 12, and to a variety full 13 . . . . It was a female. Round the knee is a garter of scarlet . . . . It inhabits Guiana as far [south] as 25 degrees of latitude; but it is more plentiful towards the north; often seen in great flocks and very noisy. The head-spots do not appear till the second or third year; I think the latter, which is the only difference between the old and young; but the under wing-coverts are red in every stage, thought paler [in youth]. The head of my bird when I obtained it was perfectly plain. Common at Cayenne, and found also in the Carribbean Islands. Called at Guiana *Parouanne*, where it flies in great numbers, frequenting savannahs and woods; fond of the fruit of the Coral Bean-tree (*Erythrina corallodendron*, Linn.). It is said to learn to talk plain; but rarely becomes familiar through confinement." May not *C. callogenys*, Salvad., be more mature *C. leucophthalmus*?

callogenys, *Salvad.*; maugei (*Souancé*).

holochlorus, *Sclat.* Two. Mexico. Central America.

rubritorquis, *Sclater*; brevipes, *Baird*; nanus (*Vig.*); aztec, *Souancé*; cactorum (*Neuw.*); æruginosus (*Linn.*); ocularis, *Sclat.* & *Salvin*; arubensis, *Hartert.*

pertinax (*Linn.*). Four. ♂, ♀.

aureus (*Gm.*). Five. ♀.

With reference to this species, there is the following note among the Knowsley MSS.:—"I do not know that any one has ever noticed the peculiar formation of the end of the fourth quill feather, which, after continuing of the usual shape till within ¾ of an inch from the end, suddenly becomes truncated on the inner web, and thence to a blunt point with the width of a little more than ⅓ inch."

This peculiarity is not confined to, nor characteristic of all *Conuri*. It occurs in the present species, and in *C. leucophthalmus*, but it is wanting in our three specimens of *C. guarouba*; it occurs, on the other hand, in *Ara nobilis*, and in *A. hahni*; in the latter, however, the fifth quill is also attenuated, while the others are squarely truncated. The shape of the fourth primary, therefore, would appear to be not altogether a safe generic character for *Conurus*.

canicularis (*Linn.*). One. Central America (St. John's River).

CONUROPSIS, *Salvad.*

carolinensis (*Linn.*). Four. Florida (March, 1884).

CYANOLYSEUS, *Bp.*

patagonus (*Vieill.*). One. ♀.

byroni, *Sclat.* (No. 1 = *C. patagonus*, Vieill., Tristr., Cat. Coll. Birds, p. 79.) Four. ♀. Chili.

GNATHOSITTACA, *Cab.*

icterotis, (*Mass.* & *Souancé*).

HENICOGNATHUS, *G.R.Gr.*

leptorhynchus (*King*). Three. Chili.

The hook of the bill not perceptibly file-like, without the aid of a magnifying glass.

LEPTOPSITTACE, *Berleps. & Stolzm.*

branickii, *Berleps. & Stolzm.*

MICROSITTACE, *Bp.*

ferrugineus (*Müll.*). Three. ♀. Chili.

PYRRHURA, *Bp.*

T **cruentata** (*Neuwied*). Two.

No. 1 (=737 Lord Derby's Coll., ex Mus. Bullock) Type of *Sanguine Parrakeet*, Lath., Gen. Hist., ii., p. 177, No. 91 (1822).

vittata (*Shaw*).

leucotis (*Licht.*). (= *P. vittata*, Shaw, *a*, Tristr., Cat. Coll. Birds, p. 79.) Six. ♂. Guiana. Brazil (Rio Janeiro).

No. 4 from Rio has the head more suffused with blue than the Guiana specimen. No. 5 (= 18882 Tristr. Coll.) differs from *P. emma* only in having the blue on the forehead very slightly marked; ear coverts whiter; blue band on lower neck narrower; and the face dark brown (not scarlet), darker than the tail: except for its larger size, it is identical with the Rio specimen.

emma, *Salvad.* (= *P. vittata*, Shaw, *b*, Tristr., Cat. Coll. Birds, p. 79.) One. Guiana.

Hardly differs in size from *P. leucotis*, No. 4 above, from Rio; but differs in having ear coverts darker and washed with blue; forehead and top of head blue; back of neck dark chocolate brown; blue band on lower neck broad; and chest more washed with bluish green.

borellii, *Salvad.*

picta (*Müll.*). Two. ♀.

luciani (*Deville*); egregia (*Sclat.*).

calliptera (*Mass. & Souancé*). Three.

melanura (*Spix*); souancii (*Verr.*); berlepschi, *Salvad.*

rupicola (*Tsch.*). One.

Cheeks, ear coverts and superciliary band greenish-yellow (not grass-green as in Cat. Birds Brit. Mus., xx., pl. II., fig. 1), with the bases of the feathers red. Feathers of hind neck brown-centered, green-margined, and tipped with cream colour. Feathers of throat and upper breast have brownish-green centres, with broad tips of cream on the throat, and orange cream on breast. Carpal edge brilliant scarlet; first primary black, with the outer edge faintly washed with blue, of which colour there is a distinct wash on the outer webs of the succeeding five primaries. Not improbably collected by Tschudi.

molinæ (*Mass. & Souancé*). Three. Bolivia.

Base of the middle tail-feathers in No. 2 blue in centre and margined with green.

devillei (*Mass. & Souancé*); chiripepe (*Vieill.*).

T **perlata** (*Spix*). One.

Probably Type of *Wave-headed Parrakeet*, Lath., Gen. Hist., ii., p. 169 (1822).

rhodogaster (*Natt.*); hæmatotis, *Souancé*; rhodocephala (*Sclat. & Salv.*); hoffmanni (*Cab.*).

MYOPSITTACUS, *Bp.*

monachus (*Bodd.*). Six. ♀. Argentine (River Plate). Chili.

No. 4 (= 666c Lord Derby's Coll.), Chili. No. 6 has the white tips on breast very inconspicuously marked.

luchsi (*Finsch*). Two. Bolivia.

BOLBORHYNCHUS, *Bp.*

aymara (*D'Orb.*). Two.

rubrirostris (*Burm.*).

orbignyi (*Bp.*). Two.

aurifrons (*Less.*). Four. [Mexico.] Peru (Lima).

andicola (*Finsch*); panychlorus (*Salv. & Godm.*); lineolatus (*Cass.*).

PSITTACULA, *Cuv.*

cœlestis (*Less.*). Four. 3♂, ♀. Ecuador. Guayaquil.

cœlestis *sub. sp.* lucida, *Ridgw.*; xanthops, *Salvin.*

conspicillata, *Lafr.* Seven. 2♂, ♀. Mexico (Bolanos). Bogota.

sclateri, *G.R.Gr.*

passerina (*Linn.*). Twenty-three. 6♂, ♀. Rio Janeiro. Mexico (Bolanos).

No. 10. (Female) has its under wing-coverts and axillaries verditer blue; greater wing-coverts edged with pale blue, and rump grass-green.

modesta, *Cab.*; crassirostris, *Tacz.*; flavescens, *Salvad.*; cyanopygia, *Souancé*; spengeli, *Hartl.*

guianensis (*Sw.*). Five. ♂, ♀. Cumana. Orinoco.

BROTOGERYS, *Vig.*

ferrugineifrons, *Lawr.*

tirica (*Gm.*). Two. ♀. Brazil (Rio Janeiro).

chiriri (*Vieill.*). Three. ♂.

virescens (*Gm.*). Two. ♂. Cayenne.

pyrrhopterus (*Lath.*). Five. 3♂. Andes. Guayaquil. [Sandwich Ids].

jugularis (*Müll.*). Six. ♀. Guatemala.

devillei (*G.R.Gr.*). One.

gustavi, *Berleps.*; tuipara (*Gm.*).

chrysopterus (*Linn.*). Five. ♂. 3♀. S. America.

chrysosema, *Natt.*

tui (*Gm.*). Three. 3♀.

In all three specimens (= 821, 821*a*, 821*b*, Lord Derby's Coll.) the yellow streak behind the eye is present. Salvadori's remarks on this subject (Cat. Birds Brit. Mus., xx., p. 266) are puzzling:—"*Female.* No yellow streak behind the eyes." . . . . . "I do not know whether the yellow streak behind the eye ever appears in the female."

PIONINÆ.

CHRYSOTIS, *Sw.*

canifrons, *Lawr.*

T **guildingi** (*Vig.*). Two. St. Vincent.

No. 1 (= 12780 Tristr. Coll.) collected by Guilding, purchased by T. C. Eyton from Mus. Zool. Soc.; purchased from Eyton by Canon Tristram. Type of species; figured, Fraser, Zool. Typ., pl. lvii.

augusta (*Vig.*). One.

vinacea (*Prince Maxim.*). Two. S. America. [Guadelupe.]

versicolor (*Müll.*); bouqueti (*Bechst.*); guatemalæ, *Hartl.*; virenticeps, *Salvad.*; inornata, *Salvad.*

farinosa (*Bodd.*). Two. ♂.

T **mercenaria** (*Tsch.*). One. Peru. Collected by Tschudi.

Probably a Co-type of species.

T **amazonica** (*Linn.*). Three. Surinam.

No. 3 (= 682 Lord Derby's Coll.) out of the Leverian Mus., is the Type of *Brazilian Yellow Fronted Parrot*, Var E. Lath., Gen. Syn. i., p. 287, 91 (1781), and of *Common Amazons Parrot*, Var E. Lath., Gen. Hist., ii., p. 242 (1822).

æstiva (*Linn.*). Five. 2♂, 2♀.

ochroptera (*Gm.*). One. ♀.

rothschildi, *Hartert.*

ochrocephala (*Gm.*). One. Brazil.

panamensis, *Cab.*

auropalliata (*Less.*). Three. ♂. Acajutl (Coast of Pacific).

levaillanti, *G.R.Gr.* One. ♂.

nattereri, *Finsch.*

dufresneana (*Shaw*). Two. [Cayenne.]

rhodocorytha, *Salvad.* Two. ♂.

viridigena, *Cass.* One. ♂.

finschi, *Sclat.* One. ♀. Mexico (Sierra di Alica, La Laguna).

diademata (*Spix*); lilacina (*Less.*); hecki (*Rchnw.*).

salvini, *Salvad.* One. ♂.
autumnalis (*Linn.*). Two. S. Mexico.
xanthops (*Spix*). Two. Brazil.

No. 1 agrees very well with Spix's figure (Av. Bras. i. p. 39, pl. xxvi.); but the wing coverts are not bordered with yellow as in the plate; the tips of the feathers on the back and sides of the neck, and especially the back of the head and of the underside as well, are margined with bluish rather than dusky; some yellow feathers appear on the abdomen of both specimens; the reddish-orange on the lateral tail-feathers is basal, and does not extend to the tip. In No. 2 the bars on the back of the head and neck are bluer than in No. 1. In both specimens there is a bare space round the eye extending almost to the bill, which is not represented in Spix's plate.

brasiliensis (*Linn.*). One.
bodini, *Finsch.*
festiva (*Linn.*). Four. ♂, 2 ♀. Brazil (Para). [Guiana.]
chloronota, *Souancé.*
vittata (*Bodd.*). One. [Guiana.]
pretrei (*Temm.*). One. Rio Grande [do Sul].
tucumana, *Cab.*
albifrons (*Sparrm.*). Three. Central America (Zucappa). Interior of Cayenne.
xantholora, *G.R.Gr.*; caymanensis, *Cory*; bahamensis, *Bryant*; collaria (*Linn.*); agilis (*Linn.*).
ventralis (*Müll.*). Two. ♀ juv.
leucocephala (*Linn.*). One.

PACHYNUS, *Rchnw.*

brachyurus (*Temm. & Kuhl*). Two. ♂. Brazil. Upper Amazons.

PIONUS, *Wagl.*

menstruus (*Linn.*). Five. 2 ♂, ♀. Panama. Bolivia.
reichenowi, *Heine*; cobaltinus (*Mass. & Souancé*).
T **sordidus** (*Linn.*). One. S. America.

Type of *Psittacus sordidus*, var A. Lath., Gen. Hist. ii. p. 223 (1822).

corallinus, *Bp.*; lacerus (*Heine*).
maximiliani (*Kuhl*). One. Bolivia.
bridgesi, *Boucard.* One. Bolivia.
tumultuosus (*Tsch.*).
seniloides (*Mass. & Souancé*). One.
senilis (*Spix*). Two. Mexico.

No. 2 a young bird.

T **chalcopterus** (*Fras.*). One. Santa Fe de Bogota.

Type of species, (Fraser, P.Z.S., 1840, p. 59).

fuscus (*Müll.*). Three.

DEROPTYUS, *Wagl.*

accipitrinus (*Linn.*). Five. ♂, ♀.

No. 5 rich xanthotic variety.

TRICLARIA, *Wagl.*

cyanogaster (*Vieill.*). Two. Brazil (Rio Grande; Rio Janeiro).

PIONOPSITTACUS, *Bp.*

melanotis (*Lafr.*).
pileatus (*Scop.*). Three. ♂.
pyrrhops, *Salvin.*
amazoninus (*Des Murs*). Two. Mexico (Bolano).
hæmatotis (*Sclat. & Salvin.*). One. Yzabal.
coccineicollaris (*Lawr.*); pyrilia (*Bp.*).

caica (*Lath.*). Three. Cayenne.
No. 3 is a xanthotic variety.
barrabandi (*Kuhl*). Two. Brazil (Rio Negro).

GYPOPSITTACUS, *Bp.*

vulturinus (*Ill.*).

UROCHROMA, *Bp.*

cingulata (*Scop.*). Three.
wiedi, *Allen*. Two. Brazil (near Rio Janeiro).
purpurata (*Gm.*). Four. Brazil. Cayenne.
surda (*Ill.*). Three. Brazil (Bahia; near Rio Janeiro).
hueti (*Temm.*); dilectissima, *Sclat. & Salvin.*; stictoptera, *Sclat.*; emmæ, *Berlp.*

CAICA, *Bp.*

melanocephala (*Linn.*). Five.
pallida, *Berlp.*; xanthomera, *G.R.Gr.*
leucogaster (*Ill.*). One. ♂.

PŒOCEPHALUS, *Sw.*

T **robustus** (*Gm.*). Six. 3♂, ♀. S. Africa (Natal, Burg Mt.). April.
No. 5, Type of *Levaillant's Parrot*, Lath., Gen. Hist., ii. p. 212 (1822).

T **rubricapillus,** sp. nov. Two. ♂. West Africa. (Whitfield, C.)

A specimen from the above locality, (No. 809 Lord Derby's Coll.), which died in confinement at Knowsley in 1867, we find it impossible to assign to any described species known to us. It is near to *P. fuscicollis* and belongs to the section, in Salvadori's key of the genus, in which the general colour is green, with the bend of the wing, metacarpal edge, and thighs without red colour, and with breast and abdomen green. But the head is neither brown nor yellow. Instead, the whole head, and the neck down to the shoulders, are silvery grey, or silvery brown, each feather broadly tipped with brick red, deeper on the top of the head and hind neck; less bright on the sides of the head, throat and chest. On the latter the silvery part of the feathers is more prominent, and ultimately merges into a pale, greyish-brown chest-band, sharply defined from the green. Ear coverts silvery grey, with red shaft stripes; interscapular region dark brown with broad green margins; upper and smaller wing coverts dark brown tipped with green. Lower back, bright green; rump and under surface, green washed with blue; the concealed parts of the flank feathers pale reddish orange. Quills black; secondaries narrowly margined with green on outer web. Upper mandible, large and conspicuously hooked, 1·6 inch, measured from tip to cere with callipers; lower, large, 1·1 inch in greatest breadth. Length, 9·6; wing, ·68; tarsus, ±1 inch.

The colour changes and variability of parrots in confinement are well known; and if ours had been a solitary specimen, we should have entered it as *P. fuscicollis*, Var. We have, however, two specimens identical in every respect, a precise similarity not likely to occur in both specimens, if abnormal.

fuscicollis (*Kuhl*), *an Var.* One. ♀. South Africa.

Sinciput and crown of head brick red, with no tinge of yellow; the red sharply defined from the occiput and hind neck, which, with the shoulders and sides of head, are greyish brown washed with faint red, and having dark shaft stripes; lower fore neck and chest brown, with faint greenish sheen, the shaft stripes conspicuous; rest of under surface yellowish green; the concealed parts of the flank feathers reddish orange; bend of wing, metacarpal edge, and thighs dark orange-red; angle of wings nearly scarlet; interscapular region, and upper wing coverts olive brown, graduating into olive green, the margins of the wing coverts washed with blue; rump washed with blue. Quills brown; secondaries olive green on outer webs; mandible from tip to cere measured with callipers 1·5; length, 10·6; wing 8 inches; tarsus, 1 inch.

gulielmi (*Jard.*). One. Juv.
aubryanus, *Souancé*; massaicus, *Fisch. & Rchnw.*
fuscicapillus (*Verr. & Des Murs*). Four. 2♂, ♀. East Africa (Orange Free State; Nyassaland). Three specimens, July.
crassus (*Sharpe*); flavifrons (*Rüppell*); citrinocapillus, *Heugl.*

senegallus (*Linn.*). Five. 2♂, ♀. W. Africa (Barcote; Gambia). April and August.

versteri (*Goff.*); rufiventris (*Rüppell*).

meyeri (*Rüppell*). Seven. ♀, 2 juv. E. Africa (Zambesi; Transvaal).

ruppelli (*G.R.Gr.*). One. ♂. S. Africa (Damaraland). July.

PSITTACINÆ.

PSITTACUS, *Linn.*

erithacus, *Linn.* Two. W. Africa (Cape Coast Castle).

erithacus, *sub. sp.* megarhynchus, *Hartert.*

timneh, *Fraser.* Two. ♂. W. Africa (Liberia). February.

CORACOPSIS, *Wagl.*

vasa (*Shaw*). Three. ♂, 2♀. Madagascar.

nigra (*Linn*). Six. 2♂, ♀. Madagascar. No. 4, Boloky, July.

barklyi, *E. Newt.* Three. Seychelles (Praslin).

sibilans, *Mil-Ed. & Oust.*; comorensis, *Peters.*

DASYPTILUS, *Wagl.*

pesqueti, (*Less.*). Two. ♂. New Guinea.

The following note, in reference to this species, found among Lord Derby's ornithological MSS., now in the Museum, will be of interest:—"Accidentally calling, in the Spring of 1825, at the shop of Mr. Tucker in the Quadrant, Regent Street, a dealer in curiosities, &c., he produced a Parrot which I had never seen before, or rather the remains of one, for it has unfortunately been preserved in the manner in which Birds of Paradise used frequently to be sent over, a stick having been thrust through it; and consequently the legs and primary quills were wanting, and the head a good deal injured. I, however, bought the bird, and it has now been set up much better than I could have expected by Sherlock." [Then follows a detailed description of the bird.] "From the mode in which the skin was impaled, being similar to that practised on the Paradise Birds, it may be conjectured that the bird, when living, had the same habitat with them." *Dasyptilus pesqueti* remained unknown to science till Lesson described the species in June, 1831.

PALÆORNITHINÆ.

NECROPSITTACUS.

rodericanus (*A. Milne-Ed.*). Extinct.

ECLECTUS, *Wagl.*

pectoralis (*P.L.S.Müll.*). Fourteen. 5♂, 6♀, Sternum. New Guinea. Duke of York Island: July. Solomon Islands (San Cristoval; Bugutu).

roratus (*P.L.S.Müll.*). Two. 2♀.

cardinalis (*Bodd.*). Three. 3♀.

riedeli (*Meyer*). One. ♂. Timor-laut.

westermanni (*Bp.*); cornelia, *Bp.*

GEOFFROYUS, *Bp.*

sudestiensis, *De Vis*; keyensis, *Schleg.*; timorlaoensis, *Meyer*; personatus (*Shaw*); tjindanæ, *Meyer.*

aruensis (*G.R.Gr.*). Four. 2♀. New Guinea.

orientalis, *Meyer.*

rhodops (*G.R.Gr.*). Three. ♂, 2♀. Amboina. Bouru.

floresianus, *Salvad.* One. Flores.

sumbavensis, *Salvad.*

pucherani, *Bp.* Two. ♂, ♀. New Guinea.

jobiensis (*Meyer*); mysorensis (*Meyer*); dorsalis, *Salvad.*

cyanicollis (*S. Müll.*). Two. Batchian, November [New Guinea].

obiensis (*Finsch*).

T **heteroclitus** (*Homb. & Jacq.*). Six. 2♂, 3♀, ♂ juv. New Britain. Solomon Islands (San Cristoval; Bugutu).

No. 6, male juv. = Type of *G. agrestis*. Tristr. Ibis, 1882, p. 138.

simplex (*Meyer*).

PRIONITURUS, *Wagl.*

platurus (*Temm.*). One. ♂. Macassar.

flavicans, *Cass.* Two. ♂. Celebes (Minahassa, April).

verticalis, *Sharpe.*

discurus (*Vieill.*). Two. Philippines (Cebu; Manilla). April.

suluensis, *Blas.*

mindorensis, *Steere.* One. ♂. N. Mindoro. December.

cyaneiceps, *Sharpe;* luconensis, *Steere.*

T **montanus**, *Grant.* Two. ♂, ♀. Philippines (N. Luzon, Lepanto). Typical specimens.

MASCARINUS, *Less.*

mascarinus (*Linn.*). Extinct.

It may be noted here that Lord Derby had, in his MS. notes, placed on record, a doubt whether the Leverian specimen of *M. mascarinus*, now in Vienna, and said to be affected by albinism (Latham, Gen. Syn., i. pt. 2, p. 265, footnote, 1781), is not a made up bird. "Some few of the birds," he adds, "were certainly such."

TANYGNATHUS, *Wagl.*

gramineus (*Gm.*).

luconensis (*Linn.*). Five. Philippines (Cebu; Manilla; Siquijor).

megalorhynchus (*Bodd.*). One. Gilolo.

megalorhynchus, *sub. sp.* sumbensis, *Meyer;* affinis, *Wall.;* subaffinis, *Sclat.*

mulleri (*Temm.*). Five. ♂. N. Celebes.

mulleri, *sub. sp.* sangirensis, *Meyer & Wigles.*

everetti, *Tweedd.* One.

burbidgii, *Sharpe.* One. ♂. Sulu Archipelago (Tawi-tawi Id., July).

PALÆORNIS, *Vig.*

eupatria (*Linn.*). Four. 3♂, 2 juv., ♀. Ceylon. [Nepaul.]

nipalensis, *Hodgs.* Four. 4♂ (1 juv.) India (Mhow, December; Depalpore, January; Central India).

indo-burmanica, *Hume.* One. ♀. Burmah.

magnirostris, *Ball.*

wardi, *E. Newt.* Three. ♂ juv., 2♀. Seychelles (Mahé, March, June).

eques (*Bodd.*).

torquata (*Bodd.*). Eight. 5♂, 2♀. India (Himalayas, Dehra Dhoon; Rutnagherry; Godavery R., February).

docilis (*Vieill.*). Three. 2♂, ♀. Central Africa, Lado, February; West Africa, Bathurst, July.

T **cyanocephala** (*Linn.*). Thirteen. 5♂, 3♀ (ad. & 2 juv.). India (Umballah; Ramghur Hills, Behar; Bohundshar, July). Assam. Ceylon.

No. 5 (= No. 664*b* Lord Derby's Coll.) in which the lower mandible is *not* black, is the Type of *Rose-headed Parrakeet*, Var. A. Lath. Gen., Syn., i. pt. 2, p. 239, No. 39 (1787). "This . . . was alive in my possession for some time. It was purchased at the sale of Lady Reade's collection." *Lord Derby's MS.* This bird died in October 1812. No. 6 (= 664*c* Lord Derby's Coll., from Gen. Davies's Coll.), is a xanthotic variety, and is the Type of *Psittacus narcissus*, Lath., Ind. Orn. suppl., p. 21 (1801); also of *Jonquil Parrakeet*, Lath., Gen. Syn. suppl., ii. p. 83. pl. cxxiii. (1802). In No. 10 the under wing coverts are grass green as in *P. rosæ*, but it agrees with a *P. cyanocephala*, from Assam, in not having red wing spots.

rosa (*Bodd.*). Six. 2 ♂, ♀. India (Nepaul; Coonoor Pass). Burmah. Canton.

No. 1, a female, from Coonoor Pass, S. India (Tristr. Coll., 5224) has the feathers of the forehead pale plum, tipped with dull red, and on the wing coverts a distinct trace of a red spot; uropygium with distinct wash of dark verditer green; under wing coverts verditer green.

intermedia, *Rothsch.*

schisticeps, *Hodgs.* Two. ♀. Simla, June.

finschi, *Hume*; exsul, *A. Newt.*

peristerodes, *Finsch.* Seven. 3 ♂, 3 ♀. S. India; Mysore (Muddur, January; Mettapollam, December).

calthropæ, *Layard.* Three. 2 ♂, ♀. Ceylon.

T **derbyana**, *Fraser.* One.

Type of species, P.Z.S., 1850, p. 245, pl. xxv.; figured, Gould, B. Asia, vi. pl. ix.

salvadorii, *Oust.*

fasciata (*Müll.*). Nine. 3 ♂, 3 ♀. Nepaul; Burmah; Assam; Tenasserim, Tavoy, April.

alexandri (*Linn.*). (=*P. javanicus*, Osb. *b*, Tristr., Cat. Coll. Birds, p. 75). One. ♀. Borneo.

caniceps, *Blyth*; modesta, *Fraser.*

nicobarica, *Gould.* Two. 2 ♂ (ad. & juv.).

tytleri, *Hume.* Two. 2 ♂ (ad. & juv.). Andaman Ids., February and June.

longicauda (*Bodd.*). (No. 11=*P javanicus*, Osb. *a*, Tristram, Cat. Coll. Birds, p. 75). Eleven. 3 ♂, ♀. Borneo. Sumatra, Palembang Residency (Kaban, December; Soeroelangoen, Rawas River, November).

Rose-fronted Parrot, Lath., Gen. Hist., ii. p. 186 (1822).

The Type of Latham's so named species, (= 735 Lord Derby's Coll.), hitherto unidentified, is a much damaged skin, in which a portion of the back is wanting. It is undoubtedly a young *Palæornis*. Lord Derby has the following note: "Query, if this bird may not in reality be the young of some of the long-tailed species, rather than completely distinct. Yet I do not remember to have seen any of those which had acquired the whitish tips to the two middle feathers of the tail, in the earlier stage of life."

POLYTELIS, *Wagl.*

barrabandi (*Sw.*). Eight. 6 ♂, 2 ♀. Australia (N. S. Wales).

alexandræ (*Gould*).

melanura (*Vig.*). Seven. 3 ♂, 2 ♀. Australia (W. Australia, York; South Australia, Murray River.

PTISTES, *Gould.*

erythropterus (*Gm.*). Sixteen. ♀. Australia (Queensland; Port Essington; Moreton Bay).

jonquillaceus (*Vieill.*). One. Timor.

wetterensis, *Salvad.*

APROSMICTUS, *Gould.*

cyanopygius (*Vieill.*). Ten. 6 ♂ (5 ad., 1 juv.), 4 ♀. Australia (Queensland, Moreton Bay, Repulse Bay; N. S. Wales; Victoria).

insignissimus, *Gould.*

chloroterus, *Rams.* Two. ♂, ♀. New Guinea.

callopterus, *D'Alb. & Salvad.*; amboinensis (*Linn.*); buruensis, *Salvad.*

dorsalis *Q. & G.* One. New Guinea.

sulaensis, *Rchnw.* (=*A. dorsalis*, Q. & G., Tristr. Cat. Coll. Birds, p. 75). One. Sula Archipelago.

hypophonius (*Müll.*).

PYRRHULOPSIS, *Rchnb.*

splendens (*Peale*). Two. Fiji (Rewa River; Viti Levu).

tabuensis (*Gm.*). Two. ♀. Fiji (Bua, Vanua Levu, May).

T **koroensis** (*Layard*). One. ♂. Fiji (Koro, August).
Type of the species (Ibis, 1876, p. 143).

taviunensis (*Layard*). One. ♂. Fiji (N'Gila, Taviuni, July).

personata (*G.R.Gr.*). Four. ♂. Fiji (Rewa River, July).

PSITTACELLA, *Schleg*

brehmi (*Rosenb.*); brehmi *sub. sp.* pallida, *Meyer*; picta, *Rothsch*; modesta (*Rosenb.*); madaraszi, *Meyer*.

PSITTINUS, *Blyth.*

T **incertus** (*Shaw.*). Fourteen. 4♂, 3♀. Borneo (Sarawak, Tagora). Sumatra, Lampong Residency (Kotta djawa).
No. 10, male, (= 498*c* Lord Derby's Coll.. purchased at Lady Reade's sale), is Type of *Blue-Green Parrot* (Lath., Gen. Hist., ii. p. 278, 1822).

BOLBOPSITTACUS, *Salvad.*

lunulatus (*Scop.*). Five. 2♂, 2♀. Phillippine Islands (Manilla; Cataguan). [China.]

intermedius, *Salvad.*; mindanensis (*Steere*).

AGAPORNIS, *Selby.*

cana (*Gm.*). Eleven. 4♂, 4♀. Madagascar. Mauritius. Comoro Islands (Johanna Island).
In Nos. 10, male, and 11, female, collected, in Madagascar (S.W. ?), by Last, the green colour has a distinct bluish tinge, and they differ from the Comoro Id. birds which are pure green.

T **taranta** (*Stanl.*). One. Abyssinia (Pass of Taranta).
No. 1 (= No. 704 Lord Derby's Coll.), Type of species collected by H. Salt, (Lord Stanley, in Appendix iv. to Salt's *Voyage to Abyssinia*, p. lii.)

lilianæ, *Shelley*.

pullaria (*Linn.*). Nine. 5♂, 4♀. Africa (Zanzibar; Nassako, Central Africa; West Africa).

fischeri, *Rchnw.*; personata, *Rchnw.*

roseicollis (*Vieill.*). Four. South Africa ('Limpopo River, Natal').
Cf. Cat. Birds Brit. Mus., xx. p. 513. Note.

swinderniana (*Kuhl*). One. Liberia.

zenkeri, *Rchnw.*

LORICULUS, *Blyth.*

vernalis (*Sparrm.*). Four. 2♀. India (Coonoor Ghat, March; Madras, June).

pusillus, *G.R.Gr.* One.

flosculus, *Wall.*

exilis, *Schleg.* Two. Celebes (Menado).

chrysonotus, *Sclat.*; regulus, *Souancé*.

philippensis (*P.L.S.Müll.*). Four. 2♂, 2♀. Philippine Islands (Manilla; Cataguan).

mindorensis, *Steere*; siquijorensis, *Steere*.

indicus (*Gm.*). Three. Ceylon.

apicalis, *Souancé*.

bonapartii, *Souancé*. Two. ♂, ♀. Sulu Archipelago (Bongao Id., July).

galgulus (*Linn.*). Nineteen. 9♂, 5♀. Malay Peninsula (Singapore). Sumatra. [Java.] Borneo. [China.]

sclateri, *Wall.* Two. Sula Island.

quadricolor, *Wald.*

stigmatus (*Müll. & Schleg.*). Two. 2♂. North Celebes.

amabilis, *Wall.;* catamene, *Schleg.*
aurantiifrons, *Schleg.* One. New Guinea.
aurantiifrons, *sub. sp.* meeki, *Hartert.*
T tener, *Sclat.* One. Duke of York Island. April, 1880.
Co-type of the species (P.Z.S. 1877, p. 107, sp. 36).
Species incertæ sedis. Four. Philippine Islands.

PLATYCERCINÆ.

PLATYCERCUS, *Vig.*

T elegans (*Gm.*). No. 5 = *P. adelaidæ,* Tristr. Cat. Coll. Birds, p. 77 (1889). Fourteen. ♂, ♀, sternum. Australia (N. S. Wales). Norfolk Id., Oct.
Nos. 1, 2, and 3, from Norfolk Id., are much smaller than the typical *P. elegans.* Nos. 1 and 2, male and female, are Types of *P. nobbsi,* Layard, Tristram, Ibis, 1885, p. 49. The two types were spirit specimens, but the third, which has not been in alcohol, is also smaller.
mastersianus, *Rams.;* pennanti, *var.* nigrescens, *Rams.*
adelaidæ, *Gould.* Six. 2♂, ♀. South Australia.
flaveolus, *Gould.* Two. Australia (N. S. Wales).
flaviventris (*Temm.*). Thirteen. 5♂. Tasmania.
pallidiceps, *Vig.* Six. ♂, ♀. Australia (N. S. Wales; Moreton Bay).
amathusia, *Gould.*
browni (*Temm.*). Four. ♂, ♀. Australia (North, Port Essington).
erythropeplus, *Salvad.*
eximius (*Shaw*). Nine. ♂. Australia (N. S. Wales; Victoria). Tasmania.
splendidus, *Gould;* ignitus, *Leadb.*
icterotis (*Temm.*). Six. 2♂, ♀, and juv. West Australia (Swan River).
xanthogenys, *Salvad.;* occidentalis, *North.*

PORPHYROCEPHALUS, *Bp.*

spurius (*Kuhl*). Seven. 2 juv. Australia (West; Swan River). [Botany Bay.]

BARNARDIUS, *Bp.*

barnardi (*Lath.*). Nine. ♀. Australia (South).
semitorquatus (*Q. & G.*). Four. ♂, ♀. Australia (West).
zonarius (*Shaw*). Four. Australia (South; Port Lincoln).

PSEPHOTUS, *Gould.*

hæmatorrhous, *Bp.* Nine. Australia (N. S. Wales, Bogan River).
No. 4 has a large patch of verditer on the angle of the wing; tail entirely blue. No. 6 has a wash of red on the upper inner wing coverts, torquoise blue angle to the wing, with a wash of verditer nearer the body; under tail coverts mixed with red. No. 7 has a large patch of verditer on the angle of the wing, much red on the upper wing coverts; and under tail coverts almost entirely red.
It is doubtful whether *P. hæmatorrhous* ought to be separated from *P. xanthorrhous.*
xanthorrhous, *Gould.* Two. S. Australia (Victoria).
No. 2 (= 1697 Lord Derby's Coll.), a typical specimen, has a wash of red on the upper inner wing coverts: torquoise blue angle to the wing, with a wash of verditer nearer the body; under tail coverts pure yellow, without red.
pulcherrimus (*Gould*). Three. 2♂. [New Zealand.] Australia (Queensland: Darling Downs, Condamine River, July; Oakey Creek).
chrysopterygius, *Gould.*
multicolor (*Temm.*). Seven. ♂. South Australia.
hæmatonotus (*Gould*). Twelve. South Australia (N. S. Wales).

NEOPHEMA, *Salvad.*

bourkii (*Mitch.*). One. Australia. Collected by Captain Sturt.
venusta (*Temm.*). Thirteen. 2♂, 3♀, 2 juv. Australia (Victoria: Port

Philip, January; N. S. Wales: S. Australia). Tasmania, November and January.

elegans (*Gould*). Three. ♂. Australia.

chrysogastra (*Lath.*). Seven. ♂, ♀. West Australia, October. Tasmania.

petrophila (*Gould*). Four. 2♂, ♀. Australia (South; West, Retnest Island, December; Island off Cape Lewin, December.

pulchella (*Shaw*). Eight. 3♂, ♀. Australia (N. S. Wales; Victoria). Tasmania.

splendida (*Gould*), Three. 2♂, ♀. West Australia.

CYANORHAMPHUS, *Bp.*

ulietanus (*Gm.*).

T **erythronotus** (*Kuhl*). Two. Tahiti.

No. 1, collected by Sir Joseph Banks, is Type (probably) of *Red-rumped Parrot*, Lath., Gen. Syn. i. p. 249, No. 50 (1781), and of *Psittacus zealandicus*, Lath., Ind. Ornith., i. p. 102. No. 1. from the Bullock collection is labelled *Psittacus ulietanus*.

unicolor (*Vig.*). One. ♂. Antipodes Island.

novæ-zealandiæ (*Sparrm.*). Six. 2♂. New Zealand (Dunedin).

T **magnirostris**, *sp. nov.* One. Tahiti.

In general colouration similar to *C. novæ-zealandiæ*, Sparrm., but larger, especially the head and beak; upper mandible long and pointed; base lead-blue, tip black; from tip to cere (measured by callipers) 1·04 inch, greatest width ·59; width at ears 1·0 inch; maxilla was probably yellow. The crimson on the head extends more posteriorly, but does not come down so close over the eye, and is less bright, than in *C. novæ-zealandiæ*; the ear coverts brownish-red. The nape feathers with their bases yellow. Bastard wing feathers almost wholly blue, of a darker shade than in *C. novæ-zealandiæ*, and with the inner webs somewhat paler blue than the outer. The whole of the outer web of all the primaries blue, becoming peacock blue towards the tips. Tail feathers somewhat pointed at tips, but much less so than in *C. cyanurus*; in certain lights they present a wash of blue, and in others, a shade of dusky brown. Under side of tail faint oily-yellowish dun, tipped, in certain aspects, with verditer blue. Under side yellowish-green. Length, 13·5 inches from tip of tail to cere; wing, 5·7 inches; tail 7·9 inches.

rowleyi (*Bull.*). One. New Zealand (Wellington).

aucklandicus, *Bp.*

cooki (*G.R.Gr.*). Two. ♂, and sternum. Norfolk Island.

subflavescens, *Salvad.*; erythrotis (*Wagl.*).

saisseti, *Verr & Des Murs.* Two. ♂, ♀. New Caledonia (Moindou, October).

cyanurus, *Salvad.* One. ♂. [Tahiti.]

Has no yellow to bases of nape feathers.

auriceps (*Kuhl*). Nine. 3♂, 2♀. New Zealand (Wellington; Port Cooper).

intermedius, *Rchnw.*

malherbi, *Souancé.* Three. ♀. New Zealand (Port Cooper).

From Salvadori's catalogue, it would appear that *C. intermedius*, Rchnw. = *C. alpinus*, Bull., = *C. auriceps*, Kuhl (*fide* Salvadori); and *C. malherbi*, Souancé = *C. auriceps*, juv., = *C. alpinus*, Bull., (*fide* Buller and Salvadori); and *C. malherbi*, G.R.Gr., is "exactly like, only smaller," than *C. auriceps*, "which seems to vary a good deal in size." Therefore, *alpinus*, *intermedius*, and *malherbi* (G.R.Gr. *nec* Souancé) apparently all equal *auriceps*.

forbesi, *Rothsch.*

NYMPHICUS, *Wagl.*

cornutus (*Gm.*) Ten. 3♂, 6♀. New Caledonia (Koé, October; Honailou; Moindou, November; Dombea, December; Yahoué).

T **uvæensis**, *E. L. & E. L. C. Layard.* Two. ♂, ♀. Loyalty Islands (Uvea, July).

No. 1, female, is Type of the species (P.Z.S. 1882, p. 408, pl. xxvi., fig. 2).

NANODES, *Vig. & Horsf.*

discolor (*Shaw*). Fourteen. 3♂, 4♀. Tasmania.

MELOPSITTACUS, *Gould.*

undulatus (*Shaw*). Fourteen. 2♂. Australia (South; West; Queensland, Cape Upstart, May).

PEZOPORUS, *Illig.*

formosus (*Lath.*). Eleven. One pull. Australia (South).

GEOPSITTACUS, *Gould.*

occidentalis, *Gould.*

STRINGOPIDÆ.

STRINGOPS, *G.R.Gr.*

habroptilus, *G.R.Gr.* Eight. ♂, 2 skeletons. New Zealand: Middle Island (Southern Alps, March; Lake Wanaka).

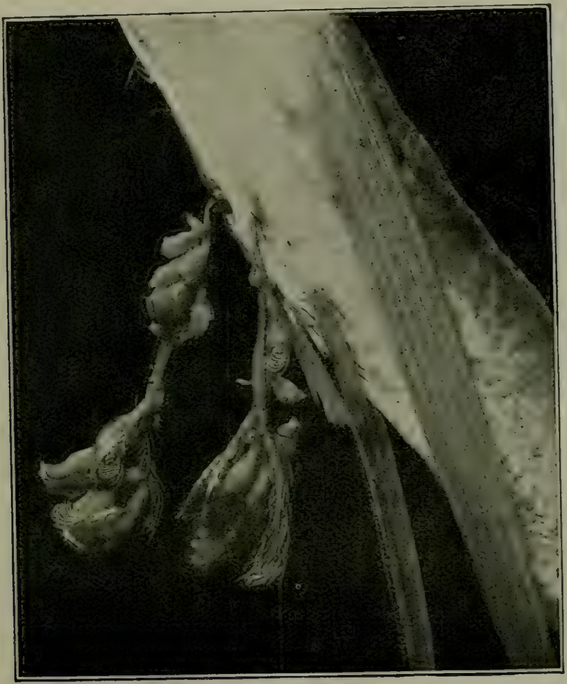
No. 5 = var *alpina*, Tristr., Cat. Coll. Birds, p. 272. Salvadori observes that this species formerly inhabited the "South Island," doubtless meaning Stewart Island. By South Island, is generally understood now, the southern of the two main islands of New Zealand. *Stringops*, in former times, lived also in the Chatham Islands.

greyi, *G.R.Gr.*

The Psittaci are, therefore, represented in the Museum by 73 out of the 82 characterised genera; and by 1258 specimens, belonging to 325, out of the 550 described, species. The number of, what we consider to be, good species, represented by their types, or by typical specimens, is 16; besides 16 relegated to the synonymy. (*July, 1897.*)

Notes from the Museums and the Aquarium.

Parasitic Crustacean on a Flying-Fish.—In May, 1896, there was presented to the Museum, by Captain Hearn of the sailing ship 'Genista,' a specimen of the Flying-Fish, *Exocœtus volitans*, about eight inches in length, accompanied with the information that it had flown on board his ship in the South Pacific Ocean. It was remarkable for having two fish-lice hanging down from the ventral surface, each of which was, in turn, covered by a colony of small Cirripeds. The fish-lice proved to be females of the parasitic Copepod, *Penella blainvillii*, the species apparently peculiar to *Exocœtus*. They were attached, as may be seen in the figure, to the ventral surface of the fish, one on each side of the middle line, about three-quarters of an inch anterior to the base of the pelvic fins, the right *Penella* being slightly in advance of the left. On making an incision into the abdomen, it was perceived that both parasites penetrated the entire thickness of the body-wall, each having its head buried in a mass of soft tissue, which together completely filled the cœlomic cavity, from side to side, at the point of insertion. It was found also that the entire cavity in front and behind this double mass of soft tissue, was completely empty. No trace of an alimentary canal or of other viscera, with the exception of the heart, was present; the masses of loose tissue investing the heads of the parasites alone occupying the cavity.



Penella parasitic on *Exocœtus*.

The horn-like processes from the head, of which each individual is provided with three, radiate for some distance. In the case of the larger *Penella* the distance from tip to tip of two of the horns, is seven-eighths of an inch.

The total length of the larger *Penella*, from the head to the tip of the plume-like tail, is 2¼ inches. In both cases the long filiform ovaries are wanting.

A third small aperture in the abdominal wall, similar to the apertures caused by the parasites, was present about mid-way between them and the cloacal aperture. This may represent the point of the attachment of a third *Penella*, which had become detached, although no sign of any interference with the specimen could be detected.

The entire absence of abdominal viscera is remarkable, if the information given with the specimen that the fish *flew* on board be true, and there is no reason to doubt it. As to the condition of the viscera in other similarly infested fishes nothing has been found in the literature at our disposal here.

The Cirripeds, of which there is about a dozen on each *Penella*, are *Conchoderma virgata*. They vary in size from quite small individuals, with the capitulum of the size of a pin-head, to others five-eighths of an inch long, each with its capitulum three-eighths of an inch in length.

Sir William Flower exhibited, in 1858, before the Zoological Society of London (P.Z.S 1858, p. 372), a specimen of *Exocœtus volitans*, from the South Atlantic, infested with a single *Penella blainvillii*, having its head buried in the muscles of the back, and to which also was attached a colony of the same Cirriped as on the specimen under notice. These two occurrences suggest that the presence of *Conchoderma virgata* living commensally on *Penella blainvillii*, is perhaps more than a chance association; and it would be of interest to obtain information of additonal instances of these two crustaceans living together in this way.

Habitat of *Gasterosteus pungitius*, Linn.—In his *Fishes of Great Britain*, Mr. Day quotes Couch's assertion that *Gasterosteus pungitius* 'will not exist when confined in salt waters, however diluted such may be.' We have living in the Aquarium, at the present time (July), a specimen of this fish captured in April last, in the undoubtedly brackish water ponds on the landward side of the Leasowe Embankament, on the Cheshire coast. It was captured along with *Palæmonetes varians*, and on arrival at the Aquarium it was transferred to one of the salt-water tanks, in which the salinity of the water is always somewhat higher than that of fresh sea-water. The Stickleback has exhibited no signs of discomfort or inconvenience,—indeed, it has thriven well, and grown appreciably—during the months it has been in our tanks, where it still remains under observation. Dr. Günther, it should be noted, observes that all the Sticklebacks 'are able to exist in the sea.'

The First Feeding of Young Trout.—A method of feeding recently hatched trout lately adopted in the Aquarium, which has proved very successful, may be of interest to pisciculturists. In April of the present year one thousand ova of *Salmo irideus* were obtained from Howietoun, near Stirling. Within a few days nearly all of them had hatched out safely, and there are now, in July, fully 60 per cent. of them alive in the tanks, many of them being over two inches in length. This represents a great improvement upon our previous trout-rearing experiences; for at the corresponding age in former years, not more than 25 per cent. had survived.

The most critical time for the young trout after hatching, is the period immediately following the absorption of the yolk-sac, when the young fish is entirely thrown upon its own exertions for its food supply. At this period the mortality in our tanks has heretofore always been high. This year, however, the young trout were, immediately after the complete absorption of the yolk-sac, removed from the hatchery to a couple of tanks, about 18 inches in depth, having a constant stream of fresh-water flowing through them. There they have been supplied regularly with sheep's liver-meal, prepared by boiling, thoroughly desicating and pounding the liver, and then passing it through a fine sieve. From the first the young trout, even the smallest and weakest, began to feed eagerly on this finely powdered material. It remains suspended in the water, without becoming saturated, and is carried round by the currents in the tank until such portions of it, as are not consumed, are carried finally away by the overflow pipes, and thus the accumulation of decaying remnants—which so often settles down at the bottom, and which is always a source of the greatest danger to young trout on account of their great susceptibility to infection from fungoid diseases—is prevented. To these arrangements and to this method of feeding we attribute our successful rearing, this year, of so large a proportion of *Salmo irideus.*

Malapterurus electricus.—Numerous specimens of this interesting fish have now been alive in the Aquarium tanks, during the past two years. The great difficulty in obtaining specimens lies in their transportation. Being inhabitants of fresh water, and of a tropical climate, they require special attention as the ship in which they are being brought approaches our latitude, as well as frequent changes of pure and well aerated water, which is not always to be obtained from a ship's tanks. Thanks, however, to the indefatigable care and attention, kept up for the many weeks of the long voyage from West Africa, by Mr. A. Ridyard, the chief engineer of the 'Niger,' one of Messrs. Elder, Dempster & Co.'s large fleet of steamers, we have had a regular supply of Electric-fishes in the Aquarium during all that time. We have gratefully to acknowledge the lively interest taken by Mr. A. L. Jones, and the other members of the firm, who have most liberally carried, freight free, anything coming for the Museums, and given every encouragement to the officers of their vessels to aid the Institution whenever it has been possible compatibly with the exigencies of the service.

The water in the *Malapterurus*-tanks has been changed every day and maintained, day and night, at an even temperature of between 70° and 80°F. When in good health the Electric Cat-fish lies sluggishly on the bottom, rising to the surface only when in expectation of being fed. They thrive well on, and take with avidity common earth worms, boiled liver chopped up, and occasionally a young trout (*Salmo*, sp.), from 2 to 3 inches in length, from those being reared in the Aquarium.

The fish has small sparkling, diamond-point like eyes, which it apparently uses very little ; and it is probable, indeed, that their vision is limited or defective, for their optic nerve is extremely attenuated, when compared with that in other fishes of corresponding size. If a worm be dropped into the tank to fall wriggling to the bottom, the *Malapterurus* rarely, if ever, sees it. A few moments, however, after the worm has fallen through the water, the fish becomes suddenly agitated, apparently through its olfactory organ, or, perhaps, by its barbels detecting the undulations communicated to the water ; and begins turning rapidly about with tensely extended and vibrating barbels, keenly quartering out the tank in quest of the quarry, whose presence it has become sensible of. The sought-for object is, however, as a rule, discovered without its coming into actual contact with the fish's tactile oral fringe. The worm once discovered disappears in a flash down the cat-fish's throat by suction, and is usually, not seen again, although sometimes it is brought up to be partially masticated. On the other hand, the presence of a young trout in the tank, is not, it would seem, detected in the same way, or so quickly as a worm or a fragment of liver. It more often discovers itself to the *Malapterurus*, by coming in contact with its body, when it is instantly partially disabled by an electric discharge, and pounced upon, when it likewise disappears in the same manner as the worm.

Electric fishes are very pugnacious and require to be kept isolated in separate tanks. Although supposed to be immune to each other's electrical discharges, the following observation would seem to throw some doubt on whether this be really the case. On one occasion the partition between two halves of a tank, each containing a *Malapterurus*, becoming faulty, two strong and healthy fishes managed to get together, and were found, by the night watchman, on his hourly rounds, fighting with each other. Adjusting the partition, he returned the combatants to their separate cells. On his return, however, an hour later, he found the barrier had again slipped, and both fishes were in the same compartment, but one was dead. On examination no external marks of violence were visible, and we can only suppose that the stronger fish had killed its neighbour by a powerful electric shock.

The specimens we have received—most of them about 6 or 7 inches long—have rarely, though in excellent health, grown much after their arrival; yet in their native state they attain to a considerable size. One individual, now in the Derby Museum, which died, *en route* last year, measures two feet four inches in length, and weighs about ten pounds, which, according to Kroo boys interrogated at the Museum, is not one of the largest. On the Nana Kroo River they give to the Electric-fish the name of 'Ntobo.' It lives in the mud, and is caught easily by baiting a hook with the fleshy exterior of the palm-nut (*Elais guineensis*) of which it appears to be fond, and of which it will eat, sparingly, on board ship during transport. The natives of West Africa dread to enter the rivers in which the *Melapterurus* abounds, as they allege that the shock, from a full grown specimen, will often prove fatal.

It is not surprising to find that the unusual, incomprehensible, and alarming power inherent in this fish has been turned to account by the 'Medicine Man.' According to the Kroo-men it is an old sorceress who first obtains the 'power' from the fish by cooking it with various ingredients of her pharmacopeia. From her the 'Juju-man' obtains it, by partaking of her brew, but he must never disclose, under pain of the medicine failing at the critical period, the name of the woman under whose incantations it has been prepared. Before going forth to war, men are made strong and brave, either by being rubbed by the Juju-man with the Sorceress' Medicine; or, by holding under his direction a fish in each hand till it dies, when the 'virtue' will be found to have entered into them, and rendered them irresistable, and immune to harm from any flying missile.

Recent acquisitions by the Mayer Museum.

1. **Cypriote Antiquities.**—In the month of March last the Committee obtained, by purchase, a small but interesting, collection of Cypriote Antiquites. It consists of good specimens of *a.* Red-polished, and white-painted Ware, and Sculptures and Terra-cottas of Bronze Age (including the period of Mykenaean importations), from before 2000 B.C. (xiith Dynasty) to about 1000 B.C.; *b.* Red, Bucchero, and white-painted Ware

of Graeco-Phœnician Age (±1000 B.C.—295 B.C.); and c. other antiquities of Hellenistic Age, and of later dates, down to the third century of our Era. A fuller account of the collection, with illustrations, will be given in an early number of the *Bulletin*, with notes on the specimens kindly supplied by Mr. J. L. Myres, Fellow of Christ Church, Oxford.

2. **Neolithic Flint Implements from Egypt.**—In the month of July the extensive and unique collection of Flint Implements made in November 1896, in Egypt, by Mr. Heywood Seton-Karr (Atherton Grange, Wimbledon), was also purchased by the Committee. This collection, although it contains a few Palæolithic Flints, is of Neolithic Age, and was gathered on the high desert tablelands of Libya, in various quarries, distributed over 20 miles of country, of whose existence all knowledge seems to have been lost, until Mr. Seton-Karr, following up information given him by Johnson Pasha and the Beduin, succeeded in discovering them. This collection also will be described, and the more remarkable and hitherto unknown forms figured, in the *Bulletin* at an early date.

3. **West African Masks.**—These masks are cut out of solid soft wood, with the face coated with a layer of whiting, except the eyebrows which are black, and the lips which are red. An elaborately carved coiffure, coloured black, surmounts the face, and in two of the specimens, it is continued under the chin. On the top of the masks are holes for the insertion of ornaments of flowers or feathers. They were attached to the wearer by grass cords, the perforations for which are visible behind.

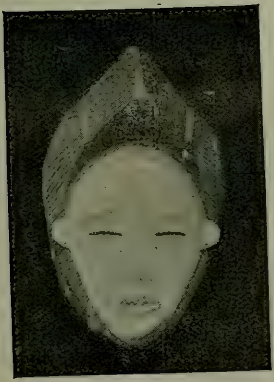


FIG. 1.

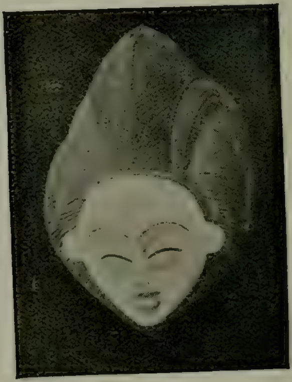


FIG. 2.

Fig. 1. (Presented by Mr. A. Ridyard) was obtained at Kopa, Sette Kama. Its dimensions are 12¼ inches high by 7⅜ broad, the face measuring 8¼ by 6¾ inches.

Fig. 2. (Presented by Mr. S. Toby) came from the French Congo State. It measures 13½ inches in height by 8¾ in breadth, the face being 7¾ by 6⅞ inches. The lips remain of the natural colour of the wood.

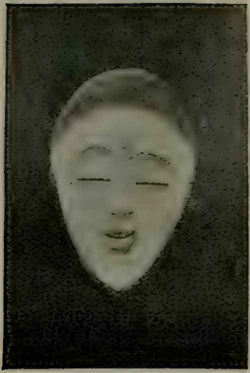


Fig 3.

Fig. 3. (Collected by Mr. J. C. Harrison) is also from Sette Kama. It has on the forehead a black lozenge, or tribal mark, in relief, on which four smaller ones are carved. This mask, which measures 9¾ inches in height by 5¾ in width, has a less extensive and elaborate coiffure, there being only a slightly rounded elevation (coloured black), representing a short-cropped crown of hair; but the portions of a series of wooden pegs indicate that the mask was surrounded by some additional ornamentation.

As to the ceremonies in which these objects were used, the donors have, so far, been unable to obtain any information except that they are entirely prohibited to women. The intrusion or prying into these rites by women, or even their chance encounter with the wearer of such a mask, would have to be expiated by death.

'Medicine' at the Museums.—It may not be without interest, from a Folk-lore point of view, to place on record that but a few days ago, an Irish lad suffering badly from scrofulous sores, was brought to the Mayer Museum by his parents, who earnestly besought the authorities that they might be allowed to touch the child's neck with an Irish Stone Celt, exhibited in one of the cases. It was unavailing to try and persuade the deluded and superstitious couple, that no possible good could follow such an application. As their faith in the efficacy of the Stone could not be shaken, and they were loth to go away without being allowed to try this, in their belief, unfailing remedy, opposition was finally, and not without some hesitation, withdrawn, and the ancient implement placed in their hands. After the operation the parents departed happy, grateful, and in the most perfect confidence that their child would be healed, and not without expressions of surprise that so great a boon had been conferred on them without the fee, which they were prepared, and that very gladly, to pay.

5 Nov. 97

PRINTED BY T. DOBB AND CO., 229, BROWNLOW HILL, LIVERPOOL.

FEBRUARY, 1898.

VOL. I. No. 2.

BRITISH MUSEUM NATURAL HISTORY

Bulletin

of the

Liverpool Museums

Under the City Council.

CONTENTS.

PAGE

On an Apparently New, and supposed to be now extinct, Species of Bird from the Mascarene Islands (provisionally referred to the genus *Necropsar*). By H. O. FORBES *(With a Plate)* - - - - - 29

Note on Two Species of Pigeon 35

Catalogue of Cuckoos and Plantain-eaters (Cuculi) in the Derby Museum. By H. O. FORBES, and H. C. ROBINSON - 37

On a Collection of Cast-Metal Work from Benin. By the DIRECTOR OF MUSEUMS *(Illustrated)* - - - - - 49

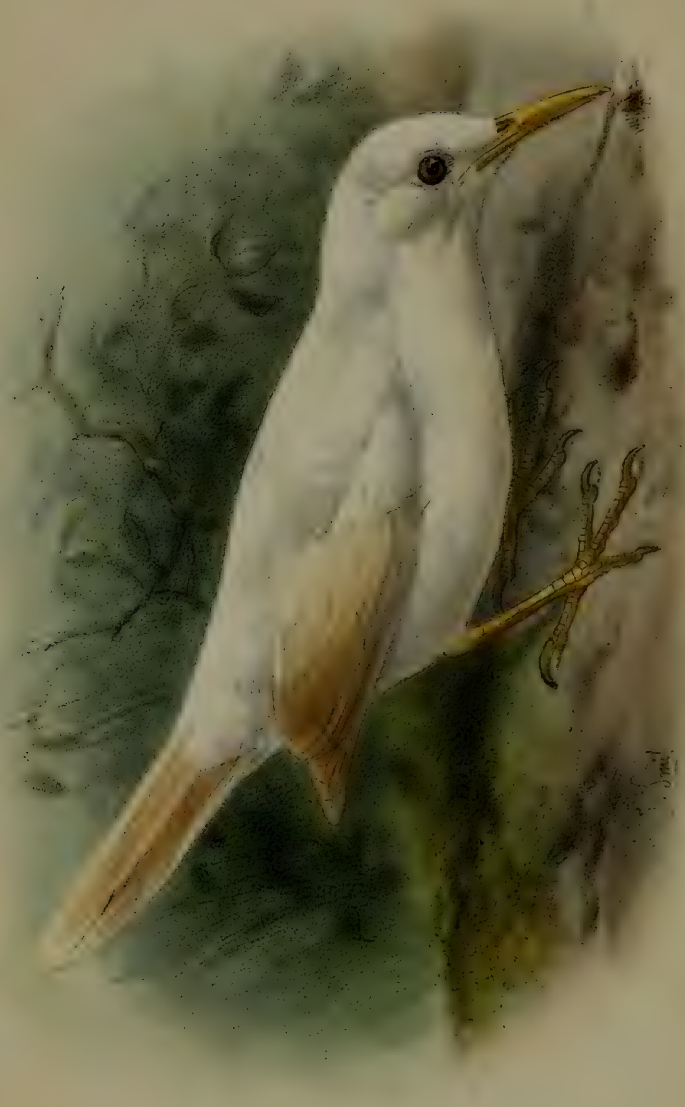
Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, SOUTH CASTLE STREET,
AND 23, PARKER STREET.

ISSUED 28th FEBRUARY.

BRITISH MUSEUM
NATURAL HISTORY.

Sturnidæ. Liverp. Mus. I.



Necropsar leguati, Forbes.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. I. FEBRUARY, 1898. NO. 2.

On an apparently new, and supposed to be now extinct, species of Bird from the Mascarene Islands, provisionally referred to the genus *Necropsar*.

BY HENRY O. FORBES, LL.D., M.B.O.U.

(PLATE I. *Sturnidæ.*)

To the zoologist or the botanist the mere mention of island forms of life calls up clusters of most fascinating associations. He is transported to scenes where the expiring survivors of some fast-vanishing race, with every mark of ancientness upon them, have held their own against time and chance within their water-walled sanctuary; or among peculiar forms in whose unfamiliar features, transformed and modified through long isolation, the birth-marks of their lineage can hardly be traced. He is in companionship with struggling exiles, clinging to life in the secluded, but hospitable, forest depths, or in the mountain recesses of their sea-girt prison, cut off by half a hemisphere, mayhap, from the present home of their kith and kin.

None, perhaps, of all the ocean isles can surpass, as Professor Newton has well remarked, the Mascarene Islands in the "wealth and multifariousness of their ornithic population"; and from few, except perhaps New Zealand and its satellite, the Chatham Islands, have so many species with an interesting past been recalled from oblivion. Thence have been rescued, by fortunate chance and persevering quest, the scattered bones of that obese Ground-pigeon, the Solitaire, and "that extraordinary production of nature known by the name of the Dodo"; of such strange Rails, as the wingless *Aphanapteryx*, the pugnacious *Erythrómachus* and the giant Coot, *Leguatia*; of that antique crested parrot *Lophopsittacus mauritianus*, as well as of the uncouth *Æpyornis*, the moa-like ostrich of Madagascar, one of whose ponderous eggs would have been load enough for a youth. Thence also have been recovered fragments of pristine apes, and carapaces of gigantic tortoises bigger than, and not unlike, an ancient up-turned coracle, of which last the few patriarchal individuals, that have bridged the centuries and survived for us to see in the flesh, may well have been actual contemporaries of the creatures whose features we can picture only from their bones, and eye-witnesses of the passing of the last survivor of them.

For many charming chapters in the history of the lost population of the Mascarene region, we are specially indebted to the researches of, among others, those distinguished zoologists, Milne-Edwards, Grandidier, Oustalet, Strickland, Forsyth Major, Tristram, and pre-eminently of Sir Edward and Professor Newton. From the vanishing species, thus recovered, or reconstructed from their bones, and replaced, though unclothed with flesh, in the scenes they once peopled, it is possible to piece together the broken story they tell of the profound climatic and geographical vicissitudes by which the inhabitants of the region have been buffeted to and fro; of the migrations from other latitudes which they have been driven to make, and of the more spacious homes that they once occupied.

To the late Sir Edward and his brother, Professor Alfred Newton, we owe the salvation to ornithology of one of the latest additions to the list of the fast disappearing fauna of the Mascarenes, that expiring, if not already quite extinct, Parakeet *(Palæornis exul)*, of which two specimens now in Cambridge, obtained, in Rodriguez, by Sir Edward Newton, are still the only known examples.

It is with no little satisfaction that I am able to add, what I believe to be, still another species to that list.

In a cabinet in the Derby Museum, where it had reposed for nearly fifty years, among species of *Hypsipetes*, there was discovered in the early part of this year (1897), during an examination of our unmounted ornithological collection for the purposes of the 'Catalogue of Birds in the Derby Museum' now in progress, a flat skin in perfect preservation. That it had been left undetermined for so long a period is probably due to the fact of its being taken for an albino of some species of the above-named genus, or perhaps for a white starling.

At first sight the bird is, in general appearance, not dissimilar from those with which it was associated, but a closer examination soon proved that it differs greatly from them in the form of the bill and in the external characters of its legs, which are sturnine. Its wings, however, are quite unlike those of any starling, and while the bill persisted in associating itself in my mind with that of the Crested Starling *(Fregilupus varius)* of Réunion, the form of the wings and the absence of a crest long prevented me from including it in that alliance.

As to its history, I regret that I can supply no more than the meagre information afforded by its label, that it was "purchased," probably by its former noble owner, Lord Derby, on the "10th August, 1850, from M. J. Verreaux," the then well-known ornithologist and dealer in Paris; and as to its habitat, only what the reverse of the label bears, in the handwriting presumably of M. Verreaux, the single word "Madagascar."

From an observation of Dr. Murie's, in his paper on *Fregilupus varius* (P.Z.S., 1874, p. 474), it would appear that M. Jules Verreaux personally visited some of the Mascarene Islands about "the year 1832 (?)" where he shot, in the island of Réunion, the specimen of *Fregilupus varius* from which was made the skeleton, given by him to Professor Newton, forming the subject of Dr. Murie's paper. During that visit, probably, he may have also secured the bird which was eventually purchased for Lord Derby in 1850.

It is well known that M. Verreaux was often very inexact in the precise geographical data he inscribed on the labels of his specimens. "Madagascar," the locality given by him for our bird, may, therefore, if he did not himself actually collect the specimen, mean any part of the Mascarene region.

After a review, first, of all the known birds of that area, and then of all the likely species of Turdoid, Sturnoid, and Formicaroid Passeres, in our general collection, I was unable to find any species with which our specimen accurately agreed. A search in the National Collection which, thanks to the kindness of the authorities, I was able to make on more than one occasion, had no better results. Dr. Sharpe, even with his unrivalled knowledge of the birds of the globe, was unable, without an investigation for which he had then no time to spare from other engagements, to assign it to any known genus. A visit to America, which interrupted my enquiry, enabled me to search several of the more important trans-atlantic museums for its fellow, but also unsuccessfully. On a visit paid, shortly after my return to England, to the Hon. Walter Rothschild's Museum at Tring, I compared, with his and Mr. Hartert's kind assistance, whatever species appeared to us there to bear any relationship to my specimen, but again fruitlessly. So far I had been looking for, and expected to find, some known species that mine could be identified with, for I could scarcely believe that an undescribed Mascarene form could have remained unrecognised for so many years in a museum visited and worked over, from time to time, by one distinguished ornithologist after another.

Mr. Rothschild, however, recalled to my recollection a reference, which had escaped me, in one of the appendices to the second volume of Captain Oliver's edition of *The Voyage of François Leguat*, where, under the heading *Relation de l'Île Rodrigue*,* there occurs the following (translated) paragraph on p. 335:—

> "A little bird is found which is not very common, for it is not found on the mainland. One sees it on the *Islet au Mât*, which is to the south of the main island, and I believe it keeps to that islet on account of the birds of prey which are on the mainland, as also to feed with more facility on the eggs of the fishing birds which feed there, for they feed on nothing else but eggs, or some turtles dead of hunger, which they well know how to tear out of their shells. These birds are a little larger than a blackbird, and have white plumage, part of the wings and tail black, the beak yellow, as well as the feet, and make a wonderful warbling. I say a warbling, since they have many and altogether different notes. We brought up some with cooked meat, cut up very small, which they eat in preference to seeds."

To the above is appended a note, within square brackets, initialed "A. N." [Alfred Newton]: "I am at a loss to conjecture what these birds were, unless, possibly, of some form allied to *Fregilupus*."

In communicating the *Relation* to the French Academy of Sciences, M. Alph. Milne-Edwards remarked that he did "not know in the Mascarene Islands any species to which this description can apply."

With this *Île au Mât* bird, as above described, our Derby Museum specimen so far agrees in its general white colour, in its yellow feet and bill, and in its size being near a blackbird's; but it differs in having no black on the wings or tail. From *Fregilupus* it also differs in the form of the wings, in the absence of a crest, and somewhat in the shape of the bill.

---

* The manuscript so entitled was discovered, as M. Milne-Edwards has related, by M. Rouillard, a magistrate of Mauritius, among the archives of the Ministry of Marine. Although there was neither date, nor name of author, attached to it, M. Milne-Edwards has been able to establish, from other documentary evidence in the same archives, that it was probably written by an intelligent, but somewhat illiterate, practical marine surveyor, who was sent to Mauritius, as the result of a *Délibération du Conseil* of 20th July, 1725, for the purpose of reporting to the *Compagnie des Indes* as to the fitness of the island for one of their establishments, and that its date must, from the evidence of subsequently dated Papers in which the *Relation* is mentioned, be somewhere about, or not earlier than, the year 1730. (See the fore-mentioned work by Captain Oliver, p. 320.)

In their well-known paper in the Transactions of the Royal Society,* Dr. Günther and [Sir] Edward Newton have described, under the name of *Necropsar rodericanus*, the sub-fossil remains of a bird, discovered in Rodriguez in 1874, "on the south-west side of the island," by Mr. Slater, the Naturalist to the Transit of Venus Expedition. Therein they quote Mr. Slater's description of *Necropsar* as "altogether a smaller bird than *Fregilupus varius*, to which it is most closely allied." "If it were a mammal," continues Mr. Slater, "I should not make a separate genus of it, but as it is a bird, I think I cannot do less." The authors of the paper proceed to remark that they "quite agree with the discoverer of the bird in questioning the propriety of generically separating two species on what appear," to them, "very slight modifications of the osteological frame," and they "retain the name *Necropsar* merely from the wish of conforming with the present ornithological practice." *Necropsar* was consequently, in the opinion of Dr. Günther and Sir Edward Newton, really congeneric with *Fregilupus*. The authors agree also in assigning, with more or less probability, the fossil remains of *Necropsar* to the little white bird said to inhabit the *Île au Mât*, by the unknown author of the *Relation*. In the probable correctness of their determination they are supported by the opinion of M. E. Oustalet.† It should be noted, however, that the *Île au Mât* bird was not, in 1730 at all events, known on the mainland, whence the sub-fossil bones were brought by Mr. Slater.

The little osteological material left in the skin having been, with admirable care and skill, exposed to view,‡ where safely possible, by my taxidermist, I have been able to examine and compare with the corresponding parts of *Fregilupus* and *Necropsar*, the tibia, the proximal end of the metatarsus, of the cranium a small part only (as the occipital region had, unfortunately, been cut away), and the tongue, together with a portion of the hyoid apparatus.

Of these bones the tibia and the metatarsus (so far as the latter could be exposed to view) are coracomorphous, and closely similar, except in size, to the corresponding bones in *Fregilupus* and *Necropsar*. While, however, the tibia of *Fregilupus* measures 65 mm. in length, and of *Necropsar* from 52 to 59, the length, in the Derby specimen, is 46 (exactly that of the same bone in the Common Starling); but the diameter of the middle of the shaft in *Fregilupus* (taken from Dr. Murie's figure in the Proceedings of the Zoological Society, 1874, p. 474) in being 2 mm., indicates a proportionately more slender tibia than that in the Derby specimen, which is, though shorter, also 2 mm. in width. The width of the tibia in *Necropsar* is a little over 2 mm., as taken from the figure in the Royal Society's Transactions. In its cnemial crest, in the general contours of the "knee"-joint, and in the arched crest for the reception of the fibula, the tibia of the Derby specimen shows many resemblances to the corresponding parts of the same bone in the two species with which I have been comparing it.

The metatarsus measures in our specimen 31·5 mm., as against 45 mm. in *Fregilupus*, and 41 to 36 mm. in *Necropsar*: and its hypo-tarsus presents the same five canals, for the passage of the flexor tendons, as in these genera.

The portion of the skull which it was alone safe to uncover, showed only the somewhat damaged *basis cranii*, and the truncated brain case. The top of the skull is somewhat flat. The outer plates of the palatines are emarginate with rounded external angles; while the relations of their posterior laminæ to the pterygoid bones, the form of the quadrates, and the distal end of the vomer, all appear to agree closely with the same parts in *Fregilupus*; but it was not quite easy to make out these conditions to my complete satisfaction, as the hardened membranes could not be entirely removed, without risking too much. As in *Necropsar* and in *Fregilupus*, there is a well-marked post-orbital depression above the temporal fossa. The articular ends of the mandible also agree with the same parts in both of the other species.

---

* Phil. Trans., Vol. 168, p. 427, pl. xlii. figs. A-G (1879).

† Ann. Sc. Nat., Zoologie, t. xiii. p. 10 (1896).

‡ This operation showed that the flesh of the wings and legs had not been removed in preparing the skin, but had been mummified by some unknown process.

The tongue, in the dry state, is arrow-shaped, with a deeply-grooved horny body, and a bifurcate and frayed tip as in *Fregilupus*. In respect, however, of the proportionate dimensions of their various parts, both the tongue and the hyoid apparatus in the two birds differ considerably, as the following measurements indicate :—

	From hind fork of tongue to its tip.	Hind fork of tongue to posterior end of proximal thyrohyal.	From posterior end of proximal, to distal end of second thyrohyal cartil.	Distal end of uro-hyal to tip of tongue.	From tip of tongue to distal end of basi-hyal.
	Mm.	Mm.	Mm.	Mm.	Mm.
Fregilupus . .	28	22	21	41	34
Derby specimen	18	20	12·5	30	24

The beak of the Derby specimen, in being less curved than in *Fregilupus*, agrees more closely with *Necropsar*; but, on the other hand, it is, perhaps, less slender at the extremity than in the former, and more slender than in the latter.

What the wing formula of *Necropsar rodericanus* may have been, we cannot, of course, now discover; but if it presented the same characters which we see in *Fregilupus varius*, as it ought to have done if both the birds were, as is supposed, congeneric, then the Derby specimen differs in this respect very considerably from both species, and from *Fregilupus*, besides, in lacking a crest, notwithstanding the close osteological resemblances between them. So much is this the case that I have found it a difficult matter to decide in what group our bird should really be placed. It possesses ten primaries, and of these the tenth, or outermost, is not the rudimentary or very reduced quill seen in the *Sturnidæ* generally. The wood-cut (Fig. 1, p. 34) shows the relative proportions of the principal remiges. According to Professor Garrod's classification, the length and development of the outer primary, and the proportions of the secondaries to the primaries, should place our bird among the Formicaroid Passeres, but from which its bill and legs rigidly exclude it. The conditions, however, under which a bird, isolated in a small asylum like the *Île au Mât*, lived, removed, as it would be, too, from the persecution to which it was subject on the mainland (over which the species may, not improbably, at one time have been distributed, till exterminated possibly by the birds of prey there), with little occasion for the vigorous use of its wings, might easily be expected to result in the weak and degenerate organs that our bird exhibits. The outer primary in our bird agrees pretty closely in length (38 mm.) with the same quill in *Fregilupus*, which is from 30-35 mm.

The osteological characters, together with the form of the bill and of the tarsi and feet, in our specimen, seem to me to indicate preponderating leanings towards a Starling alliance. Resisting the temptation, therefore, to propose a new generic name for its reception, I have decided to place it provisionally under Mr. Slater's *Necropsar*, because, at all events, such of its bones as I have been able to examine, closely agree with those of *Necropsar rodericanus;* and no one is in a position to affirm that the remiges of that exterminated species differed in size and proportions from those of the new species, which I venture to characterise as

Necropsar leguati *n. sp.*

Description:—General colour white everywhere, except for a lighter or darker ferruginous wash on the external webs of the distal half of the primaries and secondaries, as also on the outer webs of the newly moulted, and on both webs of the unmoulted rectrices. Bill, legs, and feet yellow.

Bill higher than broad at the nostrils; pointed and curved, but less so than in *Fregilupus varius*, and presenting on the upper mandible a slight notch at the tip; both mandibles meet in a point; length from gape, 37 mm.; culmen (measured with callipers), 32, and from the anterior margin of nostril, 21·5 mm. Nasal aperture elongated, with a superior membrane; a tract of short erect plumes on each side from the forehead to the posterior margin of the aperture, leaving the ridge of the culmen naked between them. No rictal bristles.

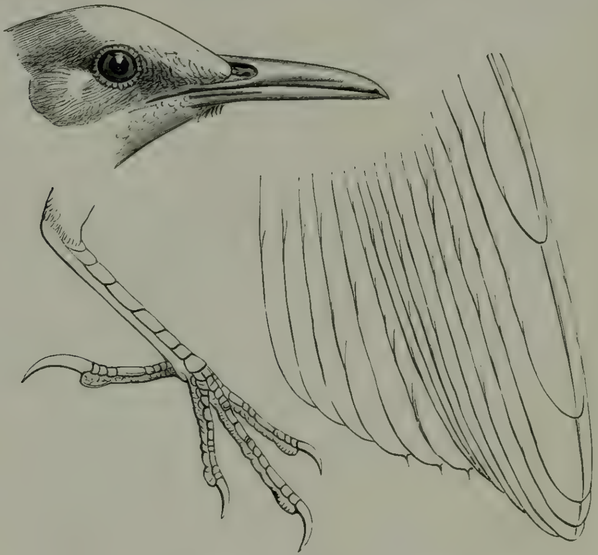


FIG. 1.—HEAD, WING, AND LEG OF *Necropsar leguati.*

The wing, composed of soft and delicate feathers, with slender shafts, is rounded and feeble; in length it measures 109 mm.; the difference between the tips of the primaries and secondaries, *i.e.*, 13 mm., is less than the length of the metatarsus, 31·5 mm.; length from carpal joint to tip of external (tenth) primary, 64 mm.; length of tenth primary, 38 mm.; ninth, 27 mm. longer than the tenth; eighth, 13 longer than the ninth; seventh, 4 longer than the eighth; and sixth (the longest), 2 mm. longer than the seventh; the fifth is equal to the sixth, and the fourth is 6·5 mm. shorter than the fifth. The outer secondaries are about the same length as the inner primaries, and their outermost two or three (along with one or two of the innermost primaries) have very short acuminate tips. The wing reaches to within 54 mm.—a distance greater than the length of the metatarsus—of the tip of the tail.

The powerful metatarsus, over the top of which the feathering just comes, is scutellated in front, has the plantar aspect entire, and is 31·5 mm. in length. It has 8 scutes in front, the first, a very small one, emerging from below the feathers; the second small, but larger than the first, and followed by three others more elongated, the central one of which is 6 mm. long; the division between the fourth and fifth scutes runs obliquely downwards and inwards. The toes are strong; the hind toe has a longer and stronger claw than that of the mid toe, and measures 23 mm. with the claw, and 16 mm. without it; the middle toe with its claw is 31 mm, and 24 without it.

The tail, consisting of twelve rectrices, is 98 mm. long, and is in this specimen graduated; but as the bird was killed during moult, and the outer feathers may not have yet fully grown, it is impossible to say definitely whether it was really graduated or not. The probability is, however, in favour of a square tail, for the two central and the two outer feathers had recently been renewed; but the two intermediate ones still belong to the old plumage, and though the tips are broken off, they would seem to have been of equal length with the central ones. Total length of the specimen is 225 mm.

Necropsar leguati, which is probably unique, bore the number 1792 in Lord Derby's Museum, and, as above stated, was obtained, according to M Verreaux' label, in Madagascar. It is not improbable, however, that it is the last and only specimen of the species referred to in the *Relation de l'Île Rodrigue*, which, unknown on the mainland, was confined to the *Île au Mât*, to the "south of the main island," where it was living about a hundred and sixty years ago (1730). In that case, I feel inclined to regard *Necropsar rodericanus* as the *Fregilupus* of Rodriguez, and *N. leguati* as the true egg-eating starling of the *Île au Mât.*

Looking at our bird, it is difficult to credit it with the habits, ascribed to it by the author of the *Relation*, of even occasionally varying its diet with "turtles dead of hunger which they well know how to tear out of their shells;" while their feeding principally and habitually on, as he states, the "eggs of fishing birds," although apparently incongruous diet for a starling, may be a habit acquired on this small, quite flat islet, "without water, and almost wholly composed of limestone." There, likely enough, seeds and insects were scarce, as vegetable food would appear to have been, seeing that the turtles died of hunger, according to the narrative of this nameless but observant French surveyor, who could little have dreamt that his white bird, that made a "wonderful warbling," would remain a mystery to ornithologists for a century and a half, and that finally the solitary representative of it would be re-discovered in a provincial museum in England.

Note on Two Species of Pigeon.

Hemiphaga spadicea (Lath.).—The process of cataloguing the Pigeons in the Museum has brought to light three specimens of *Hemiphaga spadicea*, a species believed to be now extinct, and so rare in collections, that the following observations may be of interest to ornithologists.

The known specimens of this bird are distributed in three Museums, so far as we can learn: one is in the British Museum, one in the Senckenbergian collection, Frankfort, and one (or perhaps more) is apparently in the Philadelphia Academy of Sciences (Cassin, U.S. Expl. Exp. Birds, p. 225, 1858).

The habitat of *H. spadicea* is, or was, Norfolk Island, and possibly Lord Howe's Island. Our specimens, however, have, unfortunately, no locality; but the description of the *Chestnut-shouldered Pigeon* of Latham (Gen. Hist. Birds, viii. p. 31) fits our bird very closely. The name 'Chestnut-shouldered' is by no means appropriate, for there is little more than a shade of that colour to be detected; while the author's alternative of 'chocolate-red' applies more accurately, except that it may be more fully described, in our birds, as being overlaid with a dark purple wash.

This species cannot be mistaken for *H. chathamensis* (Roths.); while it can be quite readily separated from *H. novæ-zealandiæ*, by the very distinct difference in the shade of the metallic green shield on the fore-breast; as well as by the still more characteristic sharp demarcation of the rich *coppery* green of the hind neck from the chocolate purple band which crosses the back, to be suffused on the scapular region. The head and neck show none of the purple colour seen in *H. novæ-zealandiæ*, both being of a rich bronzy green. Salvadori's description (Cat. Birds, B.M. xxi. p. 239) correctly specifies the wing-coverts and secondaries, with the rump and upper tail-coverts, as being more greyish than in *H. novæ-zealandiæ*.

It seems remarkable that Mr. Cassin *(loc. cit.)* was unable to detect any "differences sufficient to induce" even "a suspicion that there is any specific distinction" between the New Zealand birds, and Australian and Norfolk Island specimens, in the Philadelphian Gould collection, if the skins before him were authentically from Norfolk Island. A suspicion is raised in noting that some of his specimens are from 'Australia,' where species of *Hemiphaga* have very doubtfully, if ever, been obtained. In this Museum are several of Mr. Gould's skins with undoubtedly erroneous localities, such as *Australia* for *Norfolk Island*, and *New Zealand* for *Australia;* this may be the case in some of the Philadelphia specimens.

Two of our specimens are, according to the labels, aviary birds, and look so; while the third, though so marked, is in such excellent and perfectly unworn plumage that it is difficult to believe that it had ever lived in confinement.

The *Columba princeps* of Vigors, which he described from two specimens in the Zoological Society's Gardens in London, is by Salvadori considered to belong to this species. It may possibly be that the British Museum specimen, which, from the description in their Catalogue, looks as if it had been an aviary bird, is one of the types of *C. princeps.*

The 'Southern Pigeon' of Latham.—Count Salvadori has, in his Appendix to Vol. xxi. of the British Museum Catalogue of Birds, entered (p. 641) *Columba meridionalis* among the doubtful and unidentified species of Pigeons. Among the birds which this Museum received from Lord Derby are three aviary specimens, which have been identified by Latham as his *Southern Pigeon* (Gen. Hist. viii. p. 28). One of these is the type of his "female or young," *Southern Pigeon, var. a*, and is labelled by Lord Derby "*Columba meridionalis, se ipso judice*"*;* the second is marked, "Dr. L. considers this an old male." These prove to be *Zenaida zenaida*, Bp.

The third specimen is inscribed, "Considered by Dr. L. as a young male." We have identified this as *Zenaida auriculata* (Des Murs). *H.O.F.*, and *H.C.R.*

Catalogue of the Cuckoos and Plantain-eaters (Cuculi) in the Derby Museum.

By HENRY O. FORBES and HERBERT C. ROBINSON.

Note.—*The arrangement and nomenclature followed in this Catalogue are nearly those adopted in the 'Catalogue of Birds in the British Museum,' Vol. XIX., by G. E. Shelley. All the species, known to us up to December 1897, are enumerated, those described since the publication of that volume having their original (or translated) diagnoses inserted. The names of species desiderata to our collection are printed in Grotesque type, thus*—jacobinus.

The specific name is followed by the number of specimens *of it in the Museum, then by the* sex *of each, and lastly the* locality *whence obtained, with the* month of capture, *wherever these data are known. Type specimens are marked* **T.**

CUCULIDÆ.

CUCULINÆ.

COCCYSTES, *Gloger.*

glandarius (*Linn.*). Fifteen. 3 ♂, 2 ♀. Spain (Seville, May). Palestine (Gennesareth, March; Jericho, March; Mt. Tabor, March; Bashan, Taiyibeh, March; Moab, Ghor Seisaban, March). Central Africa (White Nile). West Africa (Gambia, Barra, December). South Africa (Kroonstadt, November).

coromandus (*Linn.*). Nine. ♂. Sikkim. Bengal. Burmah.

jacobinus (*Bodd.*). Ten. ♂, 3 ♀. Central Africa (Khartoum, May). East Africa (Newala). South Africa. Northern India (Mirzapore; Etawah, September). Southern India (Madras; Nellore).

jacobinus, *sub. sp.* **hypopinarius,** *Cab. & Heine.* Five. 2 ♂, ♀. Central Africa (Nyassaland, Zomba). South Africa (Transvaal: Potchefstroom, January and May; De Kaap, Barberton, November).

jacobinus, *sub. sp.* caroli, *Norman.*

cafer (*Licht.*). Six. ♂, ♀. West Africa (Senegal). South Africa (Makalaka Country; Transvaal: Rustenburg, Eland River, January; Natal).

serratus (*Sparrm.*). Nine. 2 ♂, ♀. South Africa (Transvaal: Potchefstroom, October).

albonotatus, *Shelley.*

PACHYCOCCYX, *Cab.*

audeberti (*Schl.*); validus (*Rchnw.*).

CALLIECTHRUS, *Cab. & Heine.*

leucolophus (*S. Müll.*).

SURNICULUS, *Less.*

lugubris (*Horsf.*). Sixteen. Northern India (Nepal; Darjeeling). Ceylon. Burmah. Java. Borneo (Baram; Banjermassim). Palawan (Puerto Princesa, September).

The Palawan specimen, collected by the Steere Expedition to the Philippines, is immature. It differs from Indian and Javan birds in being smaller, especially in the bill, and in having the upper surface of a steel-blue, instead of a greenish lustre. Bornean examples are more greyish beneath.

muschenbroeki, *Meyer.*

This species, hitherto only known from Batchian, has recently been recorded from South Celebes. *Cf.* Hartert, Nov. Zool. iii. pp. 159-160 (1896).

velutinus, *Sharpe.*

HIEROCOCCYX, *S. Müll.*

sparveroides (*Vig.*). Five. ♀. India (Darjeeling). Assam. China (Ningpo, September).

bocki, *Wardlaw-Rams.*

varius (*Vahl.*). Five. ♂, ♀ (jr). Northern India (Etawah, August; Howrah, December). Southern India (Nellore).

fugax (*Horsf.*). Ten. Assam. Borneo (Labuan; Baram). Philippine Islands (Luzon).

nanus, *Hume.*

crassirostris, *Wald.* One. Celebes.

CUCULUS, *Linn.*

micropterus, *Gould.* Six. ♂, ♀. Northern India (Darjeeling). Southern India (Coonoor, January). Malay Peninsula (Malacca). China (Foochow, May).

gularis, *Steph.* Three. ♀. East Africa (Ribé). West Africa (Gambia). South Africa.

The East African specimen is smaller (wing 7·7 inches) than the West and South African ones (wing 8·2 inches); the tail also is much darker beneath, and less variegated with white; the upper mandible, except for a slightly paler region at its base, is black.

T **canorus,** *Linn.* Seventeen. 2 ♂, 2 ♀. England (Durham, September). North Africa (Algiers, September). West Africa. South Africa (Natal; Transvaal: Potchefstroom, January). Palestine (Dothan, March; Mt. Carmel, April; Lebanon). Assam. Australia (Queensland).

No. 17 (= 721 Tristram Mus.) is the Type of *C. libanoticus*, Tristr., P.Z.S. 1864, p. 432.

intermedius, *Vahl.* Eleven. ♂. India. Borneo (Labuan). Philippine Islands. Java. Formosa, April. China (Amoy, October). Japan (Nikko, April).

solitarius, *Steph.* Six. East Africa (Mamboio). Central Africa (Nyassaland, Zomba, January). South Africa (Natal).

poliocephalus, *Lath.* Five. ♀. India (Himalayas). Java. Madagascar.

gabonensis, *Lafr.*

clamosus, *Lath.* Four. ♀. West Africa (Gambia, Bathurst, September). South Africa (Port Natal).

pallidus (*Lath.*). Thirteen. Southern Australia (Melbourne). Tasmania (Hobart). [Java.]

sonnerati, *Lath.* Seven. ♀. India (Bengal). Sumatra (Lampongs, Gunung Trang). Java.

aurivillii, *Sjöstedt, J.f.O.* 1892, p. 313; *id. Svenska Ak. Handl.* xxvii. No. 1. p. 47, Taf. iii. (1895); *Reichenow, J.f.O.* 1896, p. 52.

"Male above black, with an iron lustre; scapulars and lesser wing-coverts metallic virescent. Primaries dull black above, paler beneath, with their inner margins mottled with white. Tail iron-black, unspotted. Chin, throat, sides of the neck, and upper breast banded with dull iron-grey. Abdomen reddish-white, with bars of the colour of the back. Under tail-coverts uniform with the abdomen, but not barred; 'maxima nigra-maculata'; a small whitish spot in front of the eyes. Feet nearly white. Iris dark. Maxilla dark corneous; mandible pale, the upper half blackish. Length, 31 cm.; wing, 16·5 cm.; tail, 15·5; iris, 7 mm." (*Sjöstedt*). *Habitat.* Cameroons (Ekundu N'Dene).

CERCOCOCCYX, *Cab.*

mechowi, *Cab.*

CACOMANTIS, *S. Müll.*

flabelliformis (*Lath.*). Fifteen. 2 ♂, ♀. Australia (Queensland; New South Wales).

merulinus (*Scop.*). Twenty-eight. 3 ♂, ♀. India (Darjeeling). Lower Pegu. Malay Peninsula (Malacca). Borneo (Baram, January; Trusan, March; Labuan, December; Santubong). Java. Philippine Islands (Luzon: Manilla; Cataguan). China (Amoy).

variolosus (*Horsf.*). Two. ♂. Northern Australia (Port Essington). Molucca Islands (Ternaté, March).

insperatus (*Gould*). Two. ♂. New Guinea. New Britain (Blanche Bay, June).

virescens (*Brügg.*).

castaneiventris (*Gould*). One. New Guinea (Astrolabe Mts.).

bronzinus (*G.R.Gr.*). Five. 2 ♂, ♀, 2 ♀ jr. New Caledonia (Noumea, April and December; Moindou, October; Yahoué, March). Loyalty Islands (Lifu, Kepeneke, August).

simus (*Peale*). Three. ♂, ♀. Fiji Islands (Rewa; Wakaia, April).

C. bronzinus and *C. simus* seem scarcely separable. The dimensions of two male adult specimens of *C. bronzinus* are:—Wing, 5·7 and 5·25 inches; bill, from anterior margin of nostril, ·55, in both cases; breadth at nostril, ·30. The corresponding dimensions of *C. simus* are:—Wing, 5·08; bill, from anterior margin of nostril, ·57; breadth at nostril, ·33. In addition, the upper parts in *C. simus* have a slightly more greenish lustre than in *C. bronzinus*, and the white bars on the under surface of the tail are more regular, running right across the outer feathers.

infuscatus (*Hartl.*). Two. Fiji Islands (Rewa).

passerinus (*Vahl.*). Nine. ♂, ♀. Northern India (Darjeeling). Southern India (Neilgherries; Nellore). [China (Amoy)].

MISOCALIUS, *Cab.*

palliolatus (*Lath.*).

CHRYSOCOCCYX, *Boie.*

smaragdineus (*Swains.*). Nine. ♂. South Africa (Port Natal). West Africa (Gambia, June).

flavigularis, *Shelley.*

klaasi (*Steph.*). Thirteen. 3 ♂, ♀. West Africa (Lagos). East Africa (Ribé). South Africa (Capetown).

cupreus (*Bodd.*). Twenty. 3 ♂, 3 ♂ jr., 7 ♀. West Africa (Gold Coast; Gambia). Central Africa (Sadat, June).. South Africa (Transvaal: Potchefstroom, January, March, October, November, December).

CHALCOCOCCYX, *Cab.*

xanthorhynchus (*Horsf.*). Eight. 4 ♂, 4 ♀. Malay Peninsula (Singapore). Borneo (Trusan, February, November, December).

maculatus (*Gm.*). Three. India (Himalayas).

meyeri (*Salvad.*).

basalis (*Horsf.*). Four. Southern Australia (New South Wales, Hunter River; Victoria). Tasmania, October.

lucidus (*Gm.*). Five. New South Wales (Liverpool Ranges, October). New Zealand (Wellington).

poliurus (*Salvad.*).

T **plagosus** (*Lath.*). Eight. 2 ♂, 2 ♀. Western Australia (Perth, March). Southern Australia (New South Wales). New Caledonia (Moindou, October; Noumea, July; Dombea, June).

No. 8 (= 3963 Lord Derby's Mus.) is the Type of *Glossy Cuckow, var.*, Lath. Gen. Hist. iii. p. 300 (1822).

malayanus (*Raffl.*). Two. 2 ♂. Sulu Islands (Bongao, July). New Britain (Blanche Bay, June).

pœcilurus (*G.R.Gr.*) (= *Chrysococcyx minutillus*, Tristr. *nec* Gould, Tristr. Cat. Coll. Birds, p. 81). Two. Northern Australia (Cape York).

ruficollis (*Salvad.*); pœciluroides (*Salvad.*); misorensis (*Salvad.*); crassirostris (*Salvad.*).

COCCYZUS, *Vieill.*

lansbergi, *Bp.* One. Peru (Lima).

ferrugineus, *Gould.*

minor (*Gm.*). Four. Antilles (St. Thomas).

minor, *sub. sp.* maynardi, *Ridgw.*; minor, *sub. sp.* dominicæ, *Shelley.*

melanocoryphus (*Vieill.*). One. Brazil (Para).

americanus (*Linn.*). Five. Bermudas. United States (Ohio, Madisonville, July). Jamaica, May. Brazil (Para).

americanus, *sub. sp.* occidentalis, *Ridgw.*

erythrophthalmus (*Wils.*). Eight. ♀. United States (Illinois: Chicago, July; Cook County, Grand Crossing, May).

cinereus, *Vieill.*; pumilus, *Strickl.*

URODYNAMIS, *Salvad.*

taitiensis (*Sparrm.*). Eleven. 2 ♂, 2 ♀. New Zealand. Norfolk Island. Samoa. Society Islands (Huaheine). Duke of York Island. South Pacific (Suwarrows Island).

EUDYNAMIS, *Vig. & Horsf.*

honorata (*Linn.*). Eighteen. 10 ♂, 2 ♂ jr., 4 ♀. Northern India (Mhow, March, October; Bengal). Southern India (Mysore, Muddur, June; Coonoor Ghat; Nellore; Madras). Burmah.

mindanensis (*Linn.*). Four. 2 ♂, 2 ♀. [Java]. Sanghir Island. Philippine Islands (Luzon, Manilla).

orientalis (*Linn.*).

cyanocephala (*Lath.*). Fifteen. 5 ♂, ♂ jr., 3 ♀. New Guinea. Northern Australia (Port Stephens).

No. 3 (= 18234 Tristram Mus.) (female) from New Guinea = *E. orientalis*, Tristr. *nec* Linn., spm. *a*, (Tristr. Cat. Coll. Birds, p. 82).

rufiventer (*Less.*). Two. ♂, ♀. Duke of York Island, December. Mokoda Island, July.

No. 1 (= 4434 Tristram Mus.) (male) from Mokoda Island = *E. orientalis*, Tristr. *nec* Linn., spm. *b*, (Tristr. Cat. Coll. Birds, p. 82).

melanorhyncha (*S. Müll.*). Three. ♂, ♀. Celebes.

MICRODYNAMIS, *Salvad.*

parva (*Salvad.*).

RHAMPHOMANTIS, *Salvad.*

megarhynchus (*G.R.Gr.*).

SCYTHROPS, *Lath.*

novæ-hollandiæ, *Lath.* Six. ♀. Duke of York Island, July. Australia.

CENTROPODINÆ.

CENTROPUS, *Ill.*

ateralbus, *Less.* Three. ♂, ♀, ♀ jr. New Britain (Blanche Bay, May and June).

milo, *Gould.*

goliath, *Bp.* Four. 2 ♂, ♀ jr. Gilolo. [Celebes].

menebiki (*Less. & Garn.*). One. North-West New Guinea.

aruensis (*Salvad.*).

violaceus (*Q. & G.*). One. ♂. New Britain (Blanche Bay).

chalybeus (*Salvad.*); bernsteini, *Schl.*; spilopterus, *G.R.Gr.*; mindorensis (*Steere*).

T steerii, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p 14 (1894); *Grant, Ibis,* 1896, pp. 474-475. One. ♂. Philippine Islands (Mindoro, Calapan, July).

"Sexes alike. Forehead, crown, and nape, sides of face, chin, throat, and upper breast greenish black. The coarse shafts of the feathers shiny black, the webs with a faint greenish tinge. Hind neck and back, sides of neck, wing-coverts, and breast smoky brown, with faint greenish tinge. Hind neck and rump slaty black, tips of feathers with greenish tinge. Upper tail-coverts and upper surface of tail uniform dull metallic green. Shafts of feathers jet black from base to tip. Upper surface of wings earthy, with metallic green gloss like the tail, except on the outer four primaries, which have little gloss. Abdomen browner than and with less metallic wash. Flanks, thighs, and under tail-coverts like the rump. Under surface of tail black, with faint metallic blue gloss. Under wing-coverts and axillaries like breast. Under surface of wing uniform blackish brown. Seven males measure as follows:—Length, 16·70 inches; wing, 5·90; tail, 8·49; culmen, 1·58; tarsus, 1·65. A female measures 19·50 inches in length. Wing, 6·21; tail, 9·16; culmen, 1·74; tarsus, 1·69. *Habitat.* Mindoro . . . in deep forests, where it is not uncommon." (*Bourns and Worcester.*)

Our specimen was collected in 1890 by Dr. Platen, and was made the type of a new species by Dr. W. Blasius under an unpublished MS. name, which we suppress. The species apparently differs from *C. mindorensis* in its more powerful bill, and in the shorter nail on the hind toe. The four outer primaries are glossed with oily green equally with the others.

nigricans (*Salvad.*). One. New Guinea (Port Moresby).

phasianus (*Lath.*). Seven. ♂. Northern Australia (Horn Island, Torres Straits, June; Port Essington, December). Eastern Australia (Moreton Bay).

chlororhynchus, *Blyth*; rectunguis, *Strickl.*

sinensis (*Steph.*). Twenty. ♂, ♀, pull. Northern India. Southern India (Nellore; Madras). Burmah. Sumatra (Palembang, Batu Pantjeh, July). Java (Preanger Regencies, April). Borneo (Labuan, December; Banjermassim). Northern China, December, and Foochow, May.

purpureus, *Shelley.* One. Java.

This specimen, collected by Leschenault and acquired by Lord Derby from Leadbeater in 1818, was identified by him as *Cuculus nigrorufus*, Cuv. It perfectly agrees with the figure of *C. purpureus* given by Shelley (Cat. Birds, Brit. Mus. xix. pp. 348, 349, pl. xiii., 1891).

viridis (*Scop.*). Seven. ♀, ♀ jr. Philippine Islands (Cebu, April; Luzon, Monte Alban, February; Cataguan).

toulou (*P. L. S. Müll.*). Seven. ♂. Madagascar, July.

insularis, *Ridgw. Proc. U. S. Nat. Mus.* xvii. p. 373 (1894).

"Quite identical in nuptial plumage with *C. toulou*, Müll.; in other plumages, however, very much paler; the posterior underparts barred with pale brownish buff and dusky, in nearly equal quantity (uniform greenish dusky in corresponding plumage of *C. toulou*)." (*Ridgway*). Dimensions variable, feet apparently invariably smaller than those of *C. toulou*. *Habitat.* Aldabra and Assumption Islands.

bengalensis (*Gm.*). Five. ♀. Northern India, November. Formosa, May.

javanicus (*Dumont*). Eleven. ♀. Malay Peninsula. Sumatra (Palembang, Kaban, December). Java (Bantam, April). Borneo (Banjermassim ; Labuan, November).

epomidis, *Bp.;* leucogaster *(Leach);* nigrorufus *(Cuv.);* anselli, *Sharpe;* fischeri, *Rchnw.*

flecki, *Rchnw. Ornith. Monatsber.* i. p. 84 (1893); *Fleck, J.f.O.* 1894, pp. 210, 362, 397, taf. iv.

"*Pileum, nape, and sides of the head brown*, shafts of the feathers dark ; a white loral spot, back and wings rufous ; the tips of the outer primaries brownish, the inner barred with brown ; the whole belly white washed with pale fulvous, the under tail-coverts faintly banded with brownish ; tail feathers and upper tail-coverts dark, slightly shaded with metallic green-grey, the former very lightly barred at the tip, darker beneath ; greater under wing-coverts rufous, lesser fulvous white ; *bill pale horn colour, culmen darker ;* feet black. Total length, 420 mm. ; wing, 170 ; tail, 215 ; bill, 27 ; tarsus, 40." (*Reichenow*). *Habitat.* Damaraland. This species is not mentioned in Shelley's Birds of Africa, vol. i. (1896).

monachus, *Rüpp.* One. ♂. Abyssinia.

cupreicaudus, *Rchnw. Ornith. Monatsber.* iv. p. 53 (1896).

"Distinguished from *C. monachus* by being somewhat larger, with the upper head and neck bright violet blue, not deep blue ; the tail and upper tail-coverts copper coloured, not steel-green. The upper tail-coverts are mostly narrowly bordered with pale brown. Length, 460-480 mm. ; wing, 210-225 ; tail, 220-240 ; bill, 42-44 ; tarsus, 52-56. *Habitat.* South West Africa from Angola to Damaraland." (*Reichenow*).

senegalensis (*Linn.*). Seven. ♂, ♀. East Africa (Zambesi). West Africa (Gambia, Bathurst, August ; Senegal ; Cape Palmas, March).

superciliosus, *Hempr. & Ehr.* Two. Abyssinia.

natalensis, *Shelley.* Eight. ♂, 2 ♀, ♀ jr. East Africa (Ribé ; Mombasa ; Kikombo, August). South Africa (Transvaal : Potchefstroom, June ; De Kaap. ; Fig Tree Creek, June ; Port Natal).

Reichenow (Ornith. Monatsber. iv. p. 53, 1896), considers that *C. burchelli*, Swains. An. in Menag., p. 321 (1838), which is generally included as a synonym of *C. senegalensis* (Linn.) should be referred to this species.

melanops, *Less.* One. ♀. Philippine Islands (Samar, July).

celebensis, *Q. & G.* Three. North Celebes.

C. kangeanensis, Vorderman, (Natuurk. Tijdschr. Nederl. Ind. 1893. p. 190) appears to belong to this species. It differs principally in dimensions, which in all cuckoos, and in *Centropi* especially, are exceedingly variable.

celebensis, *sub. sp.* rufescens (*Meyer & Wiglesw.*), *Abhandl. u. Berichte, Zool. Mus. Dresd.* n. 2, p. 11 (1896) ; *Hartert, Nov. Zool.* iv. pp. 160, 164 (1897).

"Very like *C. celebensis*, but much more rufescent." *Habitat.* Eastern Peninsula of Celebes (*Meyer & Wiglesw.*). Apparently also Western and Southern Celebes. (*Hartert, loc. cit.*).

andamanensis, *Beavan.* Two. ♂, ♀. South Andaman Islands (Port Blair, May ; Gopla Kabung, May).

unirufus (*Cab. & Heine*).

PHŒNICOPHAINÆ.

SAUROTHERA, *Vieill.*

dominicensis, *Lafr.* Three. San Domingo (Las Canetas).

vetula (*Linn.*). Seven. Jamaica (Spanish Town).

merlini, *D'Orb.* One. Cuba.

bahamensis, *Bryant.*

andria, *Miller, Auk.* xi. pp. 164, 165 (1894).

"Slightly smaller than *S. bahamensis*, Bryant; colours throughout darker; bill proportionately deeper through base. Dimensions (average of four specimens): —Wing, 152 [mm.]; tail, 257; tarsus, 37·7; bill (from nostril), 37; depth through nostril, 14·50; ratio of depth to length, 39·09." (*Miller*). *Habitat.* Andros Island, Bahamas.

vieilloti, *Bp.* One. Porto Rico.

HYETORNIS, *Sclat.*

pluvialis (*Gm.*). Four. ♂. Jamaica.

fieldi, *Cory, Auk.* xii. p. 278 (1895).

"*Male*:—Upper parts, including upper tail-coverts, slaty, showing a faint trace of olive in some lights; a dusky stripe in front of the eye; throat, breast, and upper belly chestnut brown, belly tawny becoming pale on the crissum; primaries deep chestnut-brown shading into olive at the tips; under wing-coverts tawny; shafts of quills (except the first) strongly tinged with rufous brown; under surface of primaries and secondaries rufous, shading to slaty olive at tips; tail feathers (except two central ones) bluish black tipped with white, and shading to pale olive at the base; two central tail feathers pale olive becoming brownish at tips; bill dark showing a tinge of dull yellow at middle of lower mandible; legs and feet black. Length, 16·75; wing, 6·50; tail, 10·50; bill, 1·30; tarsus, 1·50 inches." (*Cory*). *Habitat.* Maniel, San Domingo.

PIAYA, *Less.*

cayana (*Linn.*). Sixteen. ♀. Mexico (Tehuantepec, September). Vera Paz (Tactic, January). Honduras. Brazil. Sarayacu.

P. cayana sub. sp. *cabanisi*, Allen (Bull. Amer. Mus. v. pp. 136-138, 1895), from Matto Grosso, appears to us to be of the same value as the forms known as *P. mehleri*, Bp., *P. thermophila*, Sclat., and *P. nigricrissa*, Sclat., which are included by Capt. Shelley in the synonymy of *P. cayana*.

melanogastra (*Vieill.*). Two. British Guiana, July.

minuta (*Vieill.*). Five. Brazil (Para).

No. 5, apparently a young bird, and without locality, is smaller, darker, and without the white tips to its tail feathers.

ZANCLOSTOMUS, *Swains.*

javanicus (*Horsf.*). Nine. 2 ♀. Malay Peninsula. Sumatra (Palembang: Kotta Djawa; Tarratas). Borneo (Trusan, September).

TACCOCUA, *Less.*

sirkee (*Gray*). Five. ♂. Central India (Muddapur, September; Futteghur, November). Southern India (Nellore).

RHOPODYTES, *Cab. & Heine.*

viridirostris, *Jerd.* Four. Southern India (Mynaad, Madras; Nellore). Ceylon.

tristis (*Less.*). Four. Northern India (Darjeeling).

T elongatus (*S. Müll.*). One. ♀. Sumatra (Padang, Batang Singalang).

The handwriting on the label of this specimen is undoubtedly Müller's, being similar to that on others collected by him in Timor, and in Triton Bay, New Guinea; the bird, which was purchased from Leadbeater in March, 1841, is almost certainly a Co-type of the species.

elongatus, *sub. sp.* **kangeanensis**, *Vorderman, Natuurk. Tijdschr. Nederl. Ind.* 1893, pp. 188-189.

"The Kangean sub-species of *Rhopodytes elongatus*, Müll., is of smaller dimensions than the typical form from Sumatra, and is without the white chin and black frontal feathers. In other respects the description of the Sumatra species applies perfectly. . . . Total length, 480 mm.; culmen, 32; wing, 161; tail, 331; tarsus, 35." (*Vorderman*).

There would seem to be some mistake about these dimensions. Vorderman describes the bird as being smaller than *R. elongatus*, but gives 161 mm. as the measurement of the wing. The wing of *R. elongatus* is, according to Shelley (Cat. Birds, Brit. Mus. xix. p. 389 (1891)), 5·7 inches (= 145 mm.); the wing of our specimen is 143 mm. Vorderman has omitted to compare his sub-species with *R. borneensis*, from which it seems very doubtfully distinct.

borneensis (*Bp.*). (= *R. elongatus* (Müll.) Tristr. Cat. Coll. Birds, p. 83). Two. Borneo (Banjermassim).

Wing, 125 mm. One specimen is entirely without the yellowish brown wash on the breast and upper abdomen.

diardi (*Less.*). Fifteen. ♂. Tenasserim. Malay Peninsula (Pahang, December). Sumatra (Lampongs, Gunung Tetahan). Java.

Shelley (Cat. Birds, Brit. Mus. xix. p. 390 (1891)), does not include Java in the range of this species.

sumatranus (*Raffl.*). Six. ♀. [Southern India (Coonoor Ghat, November)]. Malay Peninsula. Borneo.

R. sumatranus has not hitherto been recorded from the western side of the Bay of Bengal. The specimen from Coonoor Ghat was collected by W. Davison, and labelled by him *R. viridirostris* which it certainly is not. It is possible that the label may have been transposed by him with that on one of his Malaccan specimens.

RHINORTHA, *Vig.*

chlorophæa (*Raffl.*). Thirty-four. 4 ♂, 2 ♀. Malay Peninsula (Pahang, November). Banka. Sumatra (Lampongs: Kotta Djawa; Gunung Trang; Palembang, Lake Ranau, March). Borneo (Silam; Trusan, March; Banjermassim).

PHŒNICOPHAËS, *Vieill.*

We have followed Lord Tweeddale (T.Z.S. viii. p. 52) and Graf von Berlepsch (Nov. Zool. ii. pp. 70-73, 1895) in uniting the genera *Rhamphococcyx*, Cab. & Heine, *Rhinococcyx*, Sharpe, *Urococcyx*, Shelley, and *Dryococcyx*, Sharpe, with *Phœnicophaës*, Vieill.

pyrrhocephalus (*Forst.*). Two. Ceylon.

æneicaudus, *T. and E. Verr.*

The habitat of this species, which was previously unknown, has been recently recorded (Salvad. Ann. Mus. Civ. Gen. xiv. p. 590, (1894)) as the island of Mentawei, lying off the south-west coast of Sumatra.

erythrognathus, *Bp.* Sixteen. 2 ♂. Malay Peninsula (Malacca; Pahang, January, March). Sumatra (Lampongs, Kotta Djawa).

microrhinus, *Berlepsch, Nov. Zool.* ii. pp. 70-73 (1895). Five. Borneo (Banguey; Labuan; Baram; Banjermassim).

"Very similar to *P. erythrognathus*, Bp., from Malacca and Sumatra, but to be distinguished by having the nasal apertures much smaller and narrower, oblong and not circular; bill also weaker, as well as with the scarlet colour, at the base of the maxilla, more extensive and reaching to the upper margin of the nostrils; the wings and tail are also shorter. Males and females:—Wing, 167-166; tail, 250-233; culmen, 45-41½; tarsus, 41-37 mm." (*Berlepsch*).

We can confirm Von Berlepsch's observation that this species differs from *P. erythrognathus*, principally in the form of the nostrils, which are smaller and more oblong instead of being larger and quite circular.

curvirostris (*Shaw*). Four. ♂, pull. Java (Bantam, Kosala, May, June).

harringtoni (*Sharpe*). One. Palawan.

calorhynchus (*Temm.*). Four. Celebes.

calorhynchus, *sub. sp.* meridionalis (*Meyer & Wiglesw.*) *Abhandl. u. Berichte, Zool. Mus. Dresd.* n. 2, p. 11 (1896); *Hartert, Nov. Zool.* iv. p. 164 (1897).

"Differs from the northern form [*P. calorhynchus* (Temm.)] in being paler on the head." (*Meyer & Wiglesw.*). *Habitat.* South Celebes; and also Western Celebes. (*Hartert, loc. cit.*).

CEUTHMOCHARES, *Cab. & Heine.*

flavirostris (*Swains.*). Three. West Africa (Lagos; Fantee; Cape Coast Castle).
aëreus (*Vieill.*).
australis, *Sharpe.* (= *Zanclostomus aëreus* (Vieill.). Tristr. Cat. Coll. Birds, p. 83). Three. East Africa (Ribé; Newala). South Africa (Port Natal).

DASYLOPHUS, *Swains.*

superciliosus (*Cuv.*). Three. Philippine Islands (Luzon, Manilla).

LEPIDOGRAMMUS, *Reichenb.*

cumingi (*Fras.*). Three. ♂. Philippine Islands (Luzon, San Mateo, February).

COUA, *Cuv.*

cærulea (*Linn.*). Eight. Madagascar.
reynaudii, *Pucher.* Three. 2 ♂. Madagascar (Savary, March; Imerina, January).
serriana, *Pucher.* Three. 3 ♂. Madagascar (Senbendra Forest, October).
cristata (*Linn.*). Eight. ♀. Madagascar (Bayanna Bay).
pyropyga, *Grand.* Three. ♂, 2 ♀. Madagascar.
verreauxi, *Grand.*; cursor, *Grand.*
ruficeps, *G.R.Gr.* One. Madagascar (Bayanna Bay).
olivaceiceps (*Sharpe*). One. ♂. Madagascar.
gigas (*Bodd.*). Three. 2 ♂, ♀. Madagascar.
delalandii (*Temm.*). One. Madagascar.
coquerelli, *Grand.* Two. ♂, ♀. Western Madagascar.

NEOMORPHINÆ.

CARPOCOCCYX, *G.R.Gr.*

radiatus (*Temm.*) Two. ♂. Borneo (Baram).
viridis, *Salvad.*
reynauldi, *Oust. Bull. Mus. Paris*, 1896, pp. 314-315.

> "Easily distinguished from *C. radiatus* and *C. viridis* by its blackish-blue hood, without purple; its ashy mantle tinged with a reflection of greenish purple; its fulvous chest and abdomen, transversely vermiculated, and its red beak and feet. Total length, 680-620 mm.; wing, 280-260; tail, 340-320; culmen, 47-43; tarsus, 85·75." (*Oustalet*). *Habitat.* Province of Kuang-tri, Annam.

NEOMORPHUS, *Gloger.*

geoffroyi (*Temm.*). Two.
salvini, *Sclater*; pucherani (*Deville*); rufipennis (*G.R.Gr.*); radiolosus, *Salvin.*

GEOCOCCYX, *Wagl.*

mexicanus (*Gm.*). Four. 3 ♂. North America (California, Nicasio, February; Texas, Laredo, July; Colorado, November).
affinis, *Hartl.* Five. ♀. Guatemala (Duenas, September).

MOROCOCCYX, *Sclat.*

erythropygius (*Less.*).

DIPLOPTERINÆ.

DIPLOPTERUS, *Boie.*

nævius (*Linn.*). Eight. Guatemala. Brazil.

DROMOCOCCYX, *Wied.*

phasianellus (*Spix*). Five. Brazil.
pavoninus (*Pelz.*). One. Interior of Cayenne.

CROTOPHAGINÆ.

CROTOPHAGA, *Linn.*

major, *Gm.* Eleven. ♂. Brazil (Para). Peru (Yquitos, May). Sarayacu.

ani, *Linn.* Thirteen. Jamaica (Metcalfe Parish). St. Lucia Id. March. Colombia (Antioquia, Medellin). Brazil (Para).

sulcirostris, *Swains.* Seven. ♂. San Domingo. Central America (Guatemala, Retalulm; Costa Rica, La Palma; Honduras; Acajutl (Pacific Coast)). [Chili (Valparaiso)].

GUIRA, *Less.*

guira (*Gm.*). Seven. Chili. Brazil (Para).

MUSOPHAGIDÆ.

TURACUS, *Cuv.*

leucotis (*Rüpp.*). Two. Abyssinia.

persa (*Linn.*). Five. West Africa (Senegal; Lagos).

persa, *sub. sp.* buttneri, *Rchnw. J.f.O.* 1891, p. 375.

"Very like *T. persa*, but the colour of the wings and tail purple, inclining to blue, not shining copper colour." (*Reichenow*). *Habitat.* Togoland.

Shelley apparently does not recognise this sub-species in his Birds of Africa, i. p. 119 (1896).

buffoni (*Vieill.*). Three. Fernando Po. West Africa (Gambia, Bathurst).

No. 2 (= 12633 Tristr. Mus.) is figured by Jardine and Selby, Ill. Orn. pl. 122 (1825).

Reichenow (J.f.O. 1896, p. 9) has described *T. buffoni*, sub. sp. *zenkeri*, from the Cameroons, but he gives no recognisable characters by which we can differentiate it from Gambia specimens of *T. buffoni*, which have also a fine white line beneath the black on the side of the head. Shelley (Cat. Birds, Brit. Mus. xix. p. 489) has also observed this difference in Gambia specimens, and seems to doubt the distinctness of the species from *T. persa*.

schalowi (*Rchnw.*).

livingstoni, *G.R.Gr.* Three. ♂. East Africa (Kikombo, April; Manganja Hills). Central Africa (Nyassaland).

reichenowi, *Fisch.*

chalcolophus, *Neum. J.f.O.* 1895, p. 357.

"Like *T. livingstoni*, but distinguished by being considerably larger with the tips of the crest feathers tinged with steel blue." (*Neumann*). *Habitat.* Victoria Nyanza.

emini, *Rchnw. Ornith. Monatsber.* i. p. 30 (1893).

"Very similar to *T. corythaix*, but with the beak black and more slender, the base of the mandible red, the crest of the pileum shorter, and the wing-coverts greener; back and uropygium shining metallic green, uniform with the interscapular region. Head, neck, and chest green; tips of the crest feathers white; a black spot in front of and behind the eyes; a short white streak in front of the eyes, and another longer beneath the eyes; the whole back and upper tail-coverts, wing-coverts, and innermost primaries metallic green; tail feathers metallic blue, beneath dull blue; the primaries purple red, their tips bordered with bluish black; the external web and tip of the outer primaries, with the whole of the first primary, blackish blue; the inner primaries blue, or metallic green at the base; flanks, belly, and under tail-coverts, slate-colour shaded with green; under wing-coverts slate black; bill black, base of the mandible red; feet black; iris pale brown. Total length, 425 mm.; wing, 160-170; tail, 180; bill, 21-22; tarsus, 36." (*Reichenow*). *Habitat.* Central Africa (Bundako, Uvamba; Mumbo; Vundekakare; Karēvia, Ukondjo).

corythaix (*Wagl.*). Six. ♂. [West Africa]. South Africa (Port Natal; Cape of Good Hope).

The locality of Nos. 4, 5, and 6 (= 3256, 3257, 3258, Lord Derby's Mus.) coming, according to the labels, from "West Africa," whence *T. corythaix* has not been recorded, may be erroneous.

schuetti (*Cab.*). (= *T. corythaix*, Rendall, Ibis, 1896, p. 168). One. South Africa (Transvaal, De Kaap, Moodies, August).

The locality where this specimen was collected by Dr. P. Rendall is the most southerly hitherto recorded.

macrorhynchus (*Fras.*). One. West Africa (Accra).

meriani (*Rüpp.*). Two. ♀. West Africa.

fischeri (*Rchnw.*). Two. East Africa (Pangani River, Ushambala Mts.; Ribé).

erythrolophus (*Vieill*). One. ♀.

leucolophus, *Heugl.* One. ♂. Central Africa (Faradjak, September).

hartlaubi (*Fisch. & Rchnw.*).

donaldsoni, *Sharpe, Bull. B.O.C.* iv. p. xxxii. (1895); *id. Ibis*, 1895, p. 381; *id. P.Z.S.* 1895, pl. xxviii.

"Distinguished by the pileum being green in front and pale scarlet behind, and by a large white spot in front of the eyes. Total length, 16·5 inches; wing, 7·2." (*Sharpe.*) *Habitat.* Meo, Western Somaliland.

ruspolii, *Salvad., Ann. Mus. Civ. Gen.* (2) xvi., p. 44 (1896).

Turacus sp., *Matschie, J.f.O.* 1896, p. 94.

"Sinciput and sides of the head above the eyes, greenish grey; compressed crest whitish, very slightly tinged with greenish, washed with rose at the base of the feathers, and red at the lowest part of the posterior portion; cheeks, neck, upper back, and chest olive green, cheeks more yellowish; throat apparently greyish green; back and wings steel blue; primaries red, margined with steel blue; abdomen and under tail-coverts dull grey; tail steel green, with a slight bluish lustre; bill and warts on the eyelids red; feet dark. Total length, 400 mm.; wing, 180; tail, 200; culmen, 24; tarsus, 42." (*Salvadori*). *Habitat.* Lake Bissan Abbaia, Somaliland.

GALLIREX, *Less.*

porphyreolophus (*Vig.*). Five. South Africa.

T **chlorochlamys,** *Shelley.* One. East Africa (Dar-es-Salaam).

Type of species (Shelley, Ibis, 1881, p. 118).

MUSOPHAGA, *Isert.*

violacea, *Isert.* Eight. ♂, ♀, skeleton. West Africa (Gambia, Barra).

rossæ, *Gould.*

CORYTHÆOLA, *Heine.*

cristata (*Vieill.*). Four. West Africa (Fantee).

SCHIZORHIS, *Wagl.*

T **africana** (*Lath.*). Seven. West Africa (Gambia, Bathurst, August).

No. 5 (= 104, Lord Derby's Mus.) is the Type of *Fishing Falcon*, Lath. Gen. Hist. i. pp. 156-157 (1822).

zonura, *Rüpp.* Six. ♂. Abyssinia. Central Africa (Fadibek, February).
concolor (*Smith*). Seven. Central Africa (Nyassaland, Upper Shiré River, November). South Africa (Damaraland, Otjimbinque, July; Port Natal).
leucogaster, *Rüpp.* One. Abyssinia.

GYMNOSCHIZORHIS, *Schalow.*

personata (*Rüpp.*); leopoldi (*Shelley*).

The Cuculi are, therefore, represented in the Museum by 36 out of the 44 characterised genera; and by 802 specimens belonging to 138 out of the 213 described species The number of species represented by their types is 2; besides 3 relegated to the synonymy. (February, 1898).

On a collection of Cast-Metal Work, of high artistic value, from Benin, lately acquired for the Mayer Museum.

By the Director of Museums.

The barbarous massacre, "by the orders of the King of Benin and his Councillors," of the members of an official mission pacifically proceeding from the Niger Coast Protectorate Government to visit the King, will be fresh in every one's recollection. The punitive expedition sent by Her Majesty's Government, under Admiral Rawson, to bring to account the perpetrators of this terrible outrage, captured the city on the 18th of February last (1897), and among the spoils interesting to ethnologists were, besides many large elaborately-carved elephants' tusks and other smaller objects in ivory, a great number of flat plaques, and statuettes in the round, of cast-metal looking like bronze. The wonderful technical art displayed in their construction, their profuse ornamentation, and the high artistic excellence of nearly all of them, quite astonished students of West African ethnology, as the product of that, now, at all events, more, than less barbarous region, the Niger Delta.

Of the plaques, some three hundred of which have been presented to the National Collection, where I have had the opportunity of inspecting them, this Museum has, unfortunately, acquired only one. The subjects upon them are produced in high relief, and are almost as various as the number of the plaques. Of the metal figures in the round, however, the Museum has been fortunate in securing some important examples, of which we propose to give an account in the following pages.

I. Commencing with the least important specimens in the collection I have selected the cast-metal pipe represented in Fig. 1 (Register number: 21.12.97.1). The composition of the metal has not yet been analysed, but it seems to be brass and not bronze. The pipe consists of a wide bowl, 138 mm. deep, and 85 in diameter, and a large stem-socket united together at an acute angle. Inconveniently heavy to hold in the hand, it probably was used standing on the ground on the diminutive pedestals seen on its base. On the strengthening bar between the upper rim of the bowl and the stem-socket is a rude representation of a (?) hippopotamus. The ornamentation on the stem-socket is confined to a few string-coil patterns, but on the bowl it is more elaborate. At the junction of the bowl with the stem-socket, the two are encircled by numerous turns of cord, as if the pipe

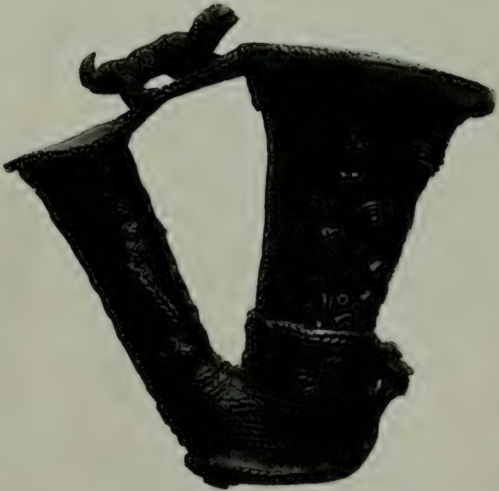


Fig. 1.—Tobacco Pipe in Metal.

had been modelled from a broken pipe which had the stem lashed to it by string. On the coils of cord in front is seated a grotesque figure, to which I am unable to give a name. Round the pipe-bowl there are two double longitudinal panels, separated by a zig-zagging serpent with its head uppermost, in the act of seizing the toes of a long-beaked bird, which is flapping its wings in its attempt to escape. This bird may represent a turkey, which, according to Burton, the celebrated traveller (who visited the city in 1862, and has given in *Fraser's Magazine** a most interesting and detailed account of what he saw), was one of the household gods of the people of Benin. "Like all others it [the abode which Burton was assigned during his stay in the city] had its household gods, three rude wooden images of turkeys with drooping wings, disposed in triangle, supported by two short truncheons, and placed in a black and white striped niche in the northern wall." The main panels on the bowl are subdivided by unstranded string partitions into two smaller panels, on the front pair of which is depicted, in high relief, on a leopard-spotted field, a decapitated bearded human head, from whose neck two strands of cord hang down to terminate in two open spirals, giving origin between them to a conventionalised serpent.

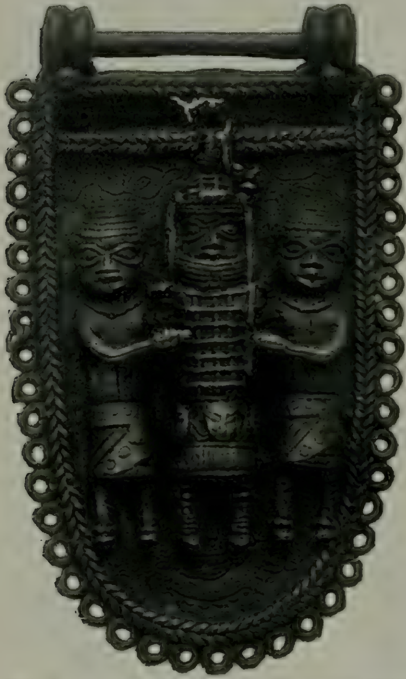


FIG. 2. LID OF BOX, WITH REPRESENTATION OF KING, OR HIGH OFFICER, ATTENDED BY HIS ARM-BEARERS.

II. Our next illustration, Fig. 2 (Register number: 7.10.97.7) represents the solitary plaque which the Museum has yet obtained. It is ornamented with three figures in high relief against a background, on which a floral ornament is chiselled above, and a rude conventionalised leopard below, the whole being enclosed within a braided border. The central figure is attended by two arm-bearers, and probably represents the King, or some other high personage; for, according to Burton, the Captain of War, and perhaps others, as well as the King, were so attended as they went about. The chief figure wears an elaborate coral and bead-studded head-dress (nearly identical with that in Figs. 7, and 8, presently to be described). His neck is encircled with a high stiff collar of coral strings reaching to his lips, apparently distinctive of Great Officers of State. A netted garment—or perhaps a chain-armour suit—covers the upper part of the body, while about his loins he wears a much embroidered cloth, 'flowered' or hung all round with mask-like faces in relief, his legs being encased in coils of anklets. Both attendants show their tribal marks on the forehead, and long scar-like stripes down the sides and front of the body.

---

* Vol. lxvii. 1863, p. 135, *et seqq.*

According to Burton, the tribal tattoo of the Benin people, of both sexes, is a line extending from the scalp down the forehead to the tip of the nose, but often ceasing at the eyebrows, made with a razor or sharp knife, and blackened with charcoal and gunpowder; and three parallel cuts about half an inch long, and placed close together, upon both cheeks, about half way between the eye and the corner of the mouth. Another favourite decoration, he adds, are three broad stripes of scar, like the effects of burning, down the front of the body from the chest to the lower stomach. "Some added," he says, "to these 'beauty spots' on the middle of the forehead, vertical lines of similar marks above the eyebrows."

The tattoo marks on these bronzes are similar, if not quite identical with, the fashion which was in vogue in 1862, and which appears to continue to the present day; for Commander Bacon writes me: "The tribe marks of the Beni, again, I had no opportunity of studying; but I was told they were both on the cheeks and on the breasts. The Houssa and the Jakri had them horizontally on the cheeks."

Tattoo marks were not the sign of low birth, for, in a letter written from Abomey, in 1724, by Mr. Bulfinch Lamb, an agent of the English African Company, who was captured by the King of Dahomey on the taking of Ardrah by his army, he states that the face of the King's General was scarified for ornament's sake.

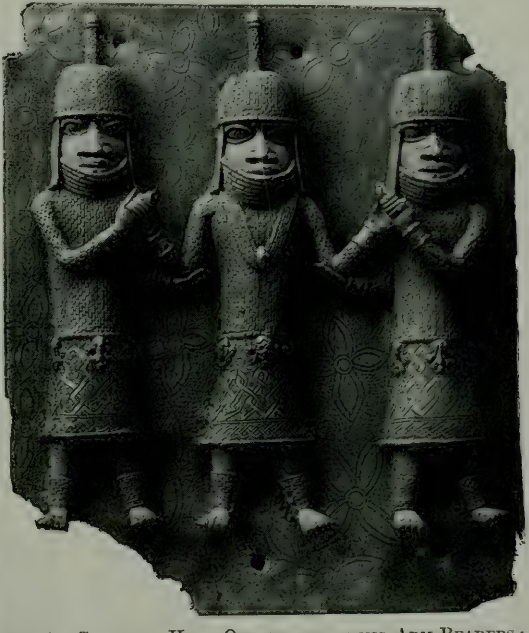


FIG. 3.—SUPPOSED HIGH OFFICER, WITH HIS ARM-BEARERS: A PLAQUE IN THE BRITISH MUSEUM.

Although this plaque is, in size, very small (being only 135 mm. by 185), and had an obvious use, having been the lid of a box (in both respects thus differing from those in the British Museum, which were decorative only, one of which (Fig. 3) I am able, through the courtesy of the Proprietors of the *Illustrated London News*, to reproduce here for comparison), it agrees with them in style of workmanship and in mode of manufacture.

Of these plaques, Commander Bacon, R.N., the Chief of the Intelligence Department to the punitive expedition, in his interesting book, "Benin: The City of Blood," says, "the [King's] storehouses contained chiefly rubbish. . . . But buried in the dirt of ages, in one house, were several hundred unique bronze plaques, suggestive of almost Egyptian design, but of really superb casting. Castings of wonderful delicacy of detail, and some magnificently carved tusks were collected, but in the majority of cases the ivory was dead from age, very few of modern date were to be seen and these mostly uncarved." And in a private letter, containing some additional particulars, with which he has been so good as to favour me, the same officer says : "The figures you mention were very different in variety. One I saw was evidently that of a Portuguese soldier or sailor of, I should think, the seventeenth century. Others were of naked figures, but a peculiarity of Benin was, that nothing of a really indecent nature was found there; and I can quite believe, what I have heard advanced as an explanation, that they were not sufficiently civilised to carry indecency into their ornaments; that they were rather 'the animal' than 'the sensualist.' The plaques and figures were apparently thrown away, the Beni seemingly not appreciating their beauty. They may have been the spoils of some campaign, taken as fetishes, but they had no place in the decoration of the houses or town, nor had the Beni any form of idol." According to another correspondent, a Niger Coast Protectorate Officer on the expedition, these plaques had been so long neglected that "a number of them were sunk in the ground and buried simply by long lying in one place."

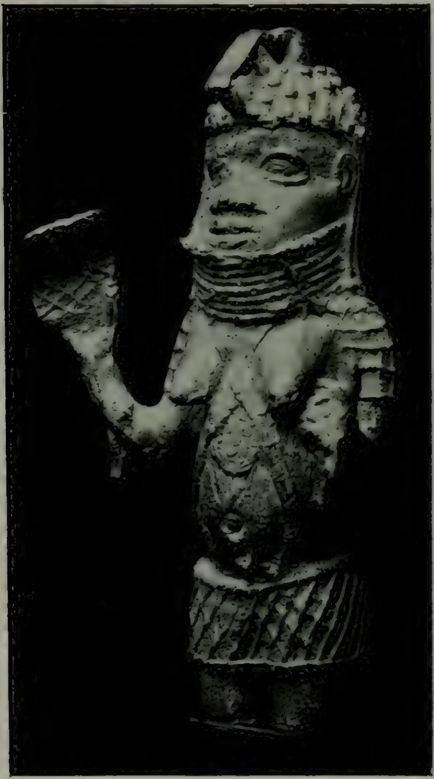


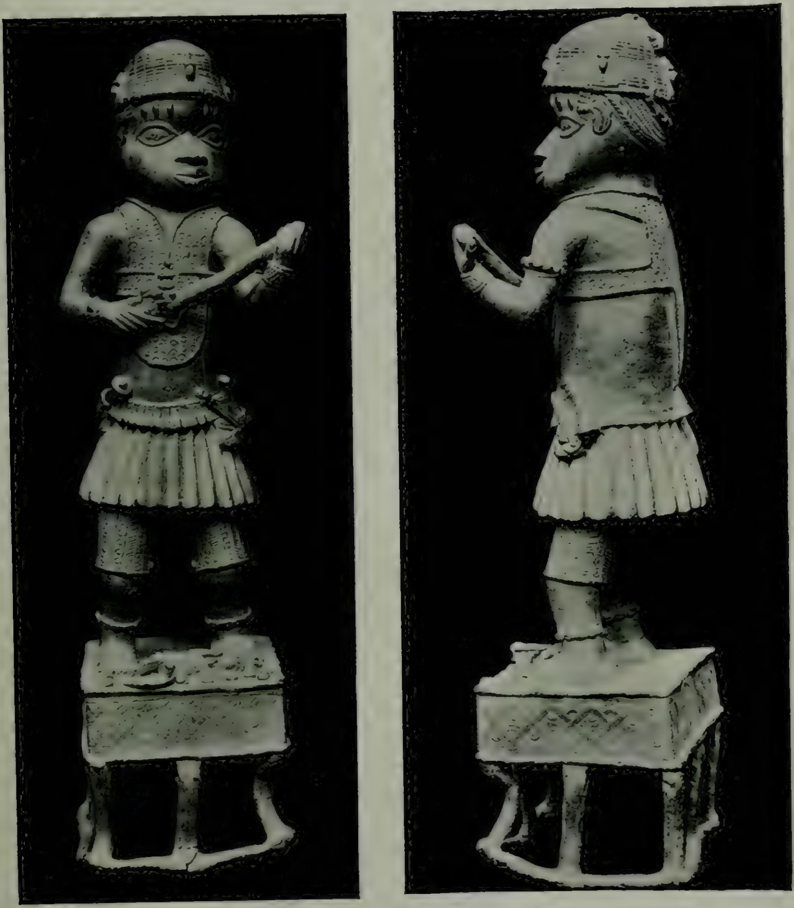
Fig. 4.—Figure of a Woman of High Rank.

All the plaques show nail holes at the corners, by which they had at one time been affixed to probably wooden supports. They may, perhaps, be the "melted copper" referred to in the Collection of African Travels by John Ogilby,* published in 1670, from accounts written, probably about 1630, by Peter de Marcez, "who, even to these times, gives us so large a Description [of the places lying along the Sea coast of the Negroes' Country] that it descends to the meanest Village," and by Samuel Blomert, "who, remaining long in those parts, being very inquisitive, hath rendered a more large and exact accompt concerning Guinee than the former." They describe the King's palace as quadrangular, "subdivided into several stately Court, Houses and Apartments in the Countries; containing within fair and long Galleries, one larger than the other, but all supported on Pillars of Wood, cover'd from the top to the bottom with melted Copper, whereon are Ingraven their Warlike Deeds and Battels, and are kept with exceeding curiosity." This picture suggests almost a barbaric Nebuchadnezzar's palace.

---

* For the opportunity of consulting this rare volume I am indebted to the kindness of Mr. James Irvine, F.R.G.S., Liverpool.

III. The next specimen, Fig. 4 (Register number: 21.12.97.5) is a small female figure, cast in the solid (the limbs truncated in the haste of looting). Her head-dress consists of a coral bead cap, surmounted by a fore-and-aft crest of bead and brass-work, with coral-string pendants. She wears the stiff coral collar up to her lips, indicative of high rank. The shoulders and tops of the arms are clad in an open net-work covering, the short loin-cloth being of the same material. The latter is suspended by four-ply strings of beads from thigh to hip, passing over the shoulders, and intercrossing on the breast and back. The body is elsewhere nude, and shows deeply incised tattoo lines down from the breasts to meet in the *umbilicus*, and four others longitudinally along the sides of the abdomen. In her right hand she carries an up-lifted fly-flapper, or fan, while her left arm, carried against the chest (but not well-defined in the block) has the fist closed, and the thumb erect.



Figs. 5 and 6.—Front and Side View of Statuette of a Native with Flint-Lock in his Hand.

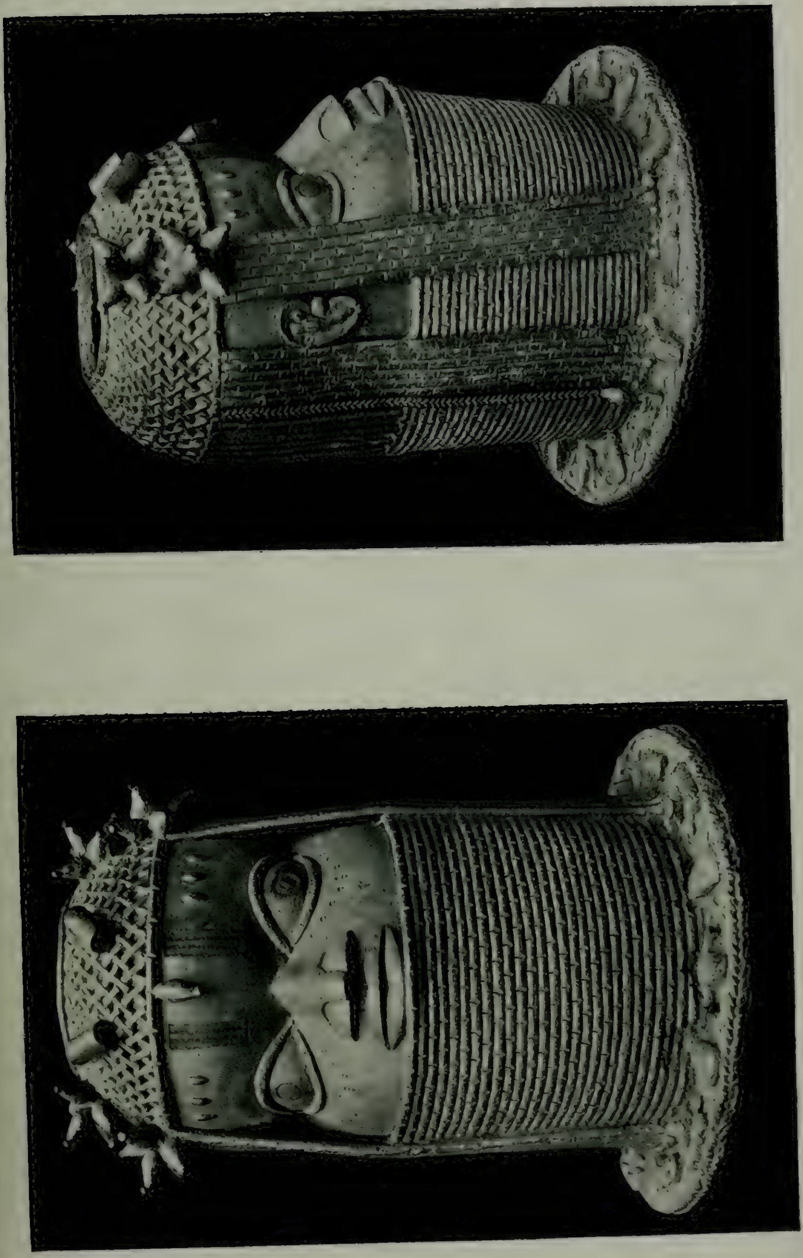
If it be a fan the lady holds in her right hand, it is not of the more usual Benin shape, of a large circle of ox-hide, such as Burton tells us he saw everywhere in Benin, in 1862, and as Commander Bacon also noted at the recent capture of the city.

This figure, it will be observed, is in the rough state in which it left the founder's hands, untouched by the finishing chisel of the artist.

IV. In Fig. 5, and Fig. 6, are presented front and side views of one of the most interesting of our acquisitions—a solid statuette, representing a native soldier, or hunter, standing, with a flint-lock in his hand, on a square octapod pedestal—the piece being, in total height, 520 mm. He is clothed as to the upper part of his body, in a garment ingeniously formed out of the two halves of a headless leopard's hide—the flat skin having been divided with a pair of legs to each section. The front part of the hide hangs down over the chest, with the front legs thrown over the shoulders, strap-wise, to be joined to the top-side of the hind half of the skin, which hangs with the tail (to the tip of which is attached a bell), reaching down the back to the girdle; the hind legs are carried under the arms as straps to meet over the chest, where they are clasped together by a buckle, formed of three rows of short-linked chains. Round his loins, supported by a girdle, is a short pleated kilt-like garment, reaching to the middle of the thighs, underneath which a pair of short trousers, made of alternate strips of leopard hide and cloth (or perhaps of one strip with the hair side out, alternating with one skin-side out) extends to the knees. To his waist-belt, in front, is tied a bandolier, through which, on the right side, is thrust a dagger-like sword with a round hilt, and a scabbard closely resembling in shape, the wooden sheaths used in Northern Africa, of which there is a specimen in the Museum (M. 4942). On his left side, he carries a pouch, a hunting knife in a leather sheath, and an ornamented powder flask, made, it would seem, from a piece of elephant tusk. Cowrie armlets and anklets, with, what is known as, a *manilio* bracelet on the right wrist, and a coral one on the left, adorn his limbs. His head is covered with what may be a netted-twine cap, having a metal-like ornament fixed at each quadrant, and a top knot of feathers, with two straps, resembling chin straps, round the back of the head. Lying between his feet, are a *manilio*, a number of small round pellets, and either a decapitated human head, or its mask, encircled with a chaplet of feathers. The tribal marks on this head are of the Benin pattern—a central line down the forehead to the root of the nose, and other three longitudinally above the eyebrows. The most interesting detail of the statuette is the well-modelled European flint-lock which the hunter holds ready in his hands, as it affords a means of fixing the date anterior to which this casting could not have been executed, *i.e.*, 1630 to 1640, the date of the invention of flint-locks. The hunter's own tribal marks are three raised scars over each eye.

The whole of the statuette appears to have been carefully chiselled over, polished, and chased after having been cast. It was found in a Juju house in the King's compound. Its Registered number is 21.12.97.4.

V. The next object—a Tusk-holder—is one of very great ethnological interest. Two views of one of a pair, hardly differing from each other, possessed by the Museum, are given in Figs. 7, and 8. Each is a hollow pedestal 340 mm. in height, and 590 in circumference, in which a richly and curiously-carved elephant's tusk was supported upon one of the sacrificial altars, in a Juju (or fetish) compound in the King's village. In his very interesting volume, already referred to, Commander Bacon, R.N., gives the following



Figs. 7 and 8.—Holder for Carved Elephant's Tusks which stood on a Sacrificial Altar of the Juju House in the King's Compound.

description of this part of the city:—"Entering from the direction of Ologbo, through a grass avenue flanked with bush, a few houses are seen on the left; these run well back into the bush. . . . Houses then straggle on, on the left side, till high red-clay walls are encountered, with a galvanised-iron roof sloping outwards from the northern wall. This is the main entrance of the King's compound. In this compound, or village, are the Juju compounds, Palaver House, King's House, and many houses for the King's immediate followers, and the Juju priests. It was in these Juju compounds that the main sacrifices were carried out. . . . .

"These spaces were about a hundred and fifty yards long and about fifty broad, surrounded by a high wall and covered with a short brown grass. At one end was a long shed running the whole breadth of the enclosure, and under this was the altar. The altar was made by three steps running the whole length under the shelter of the shed; slightly raised for some distance in the centre, on which raised portion were handsomely carved ivory tusks placed on the top on very antique bronze heads; beside the tusks, were carved clubs, undoubtedly for use upon the victims of the sacrifice." "Their blood, according to Sir R. Moor, "was subsequently smeared over the altar, and allowed to run down the steps in front."

"Behind these main Juju compounds lay the Palaver House and the King's House, side by side. The former a large oblong building, with a roof running over the side and end walls, leaving the centre open. The roof was of galvanised-iron, and down the south portion of it, ran a huge bronze serpent with a most forbidding looking head. Red mud seats ran round the walls, for the use of the Chiefs taking part in the palaver. The doors were covered with stamped brass, as were also portions of the woodwork of the roof. . . The King's House was almost identical, but smaller, and had rooms leading off it. The archway, over the King's sleeping place, was decorated roughly with stamped brass and squares of looking glass. . . ."

These tusk-holders, as may be seen in the illustration, are in the form of human heads attired in a head-dress, which is a net-work of coral beads, set off on the sides with rosettes of others of a different sort, and of larger size, and by a specially large cylindrical pair right and left of the central line, and a single central pendant in front. Hanging down over the collar, before and behind the ears, are half a dozen strings of coral, and round the back of the head, where hair should be represented (were the head not to all appearance shaved); reaching only to the upper margin of the collar, are ten more strings of the same precious material. Separating the short back strings from the longer side ones, is a braid, of the same length as the side strings, of what I suppose to be hair. Encircling the neck as high as the lower lips, are thirty-one coral ropes, forming the collar more than once already mentioned as the insignia of a high dignitary.

On the face may be observed his tribal marks, consisting of three raised weals over the outer corners of each eye, and of two long perpendicular lines running down the front of the forehead above their inner corners. These last probably represented tattooing on the brow of the ordinary sort, as it is represented by bands of iron, ingeniously let into the metal during the casting. In the same way the pupil of the eye is formed by a round disc of iron. The whole figure has been very carefully chiselled over, and when it was newly finished, there is little doubt that the steel blue tattoo lines, and the glistening pupils gave to the face and eyes a very life-like appearance. Beneath the eyes a series of small round rings have been punched.

The projecting circular flange of the base, whose edge is finished in a braided rim, has depicted on it, a series of symbolic and fetish emblems, on a field of an open—or unstranded—string pattern. From the centre of the flange in front, the different symbols follow each other in the same order round each half of the circumference. The central symbol is a bullock's head: then, in succession, a stone neolithic celt: an arm excised at the shoulder, with a tripod like ornament covering the termination, and its hand holding a three-pointed object: a frog: a fish, with protruding eyes, which resembles more nearly than any other, in my opinion, the curious mud-hopping *Periophthalmus koelreuteri*, so common on the brackish margins of West African rivers; or, possibly, it may be intended for—though very unlike—the electric fish *(Malapterurus)* which is a powerful fetish* on different parts of the coast, because of the "quaking and trembling it produces in the arm": then follows another bullock's head, which, with a second neolithic stone axe, completes the series.

The bullock's head, which occupies the central position among the symbols, is doubtless some sort of fetish. The Beni have large herds of black and white cattle, as described by Burton; and bullocks form one of the chief sacrifices, human beings being the other, when the King is making "country custom," for his father and dead ancestors. The same emblem was much in evidence also in Dahomey, where, "during the customs," as Commander Forbes records, "a party carrying the fetish gear is headed by a man in a huge coat of dry grass, wearing a large bullock's head-mask. As he passes all the boys follow crying, 'Soh, soh.' This is the representative of the god of thunder and lightning." One of these actual masks formed part of the Benin loot, and is now in the National Collection. The next emblem to this, on each side, is the representation of an undoubted neolithic celt. These implements, which occur in the ground in many parts of Africa, are, among the Yorubas, considered to be "thunderbolts which Shango or Jakuta, the thunder-god, casts down from heaven," and are venerated as sacred relics.† Among the Blacks in Tobago, in the West Indies, where they disinter similar neolithic axes, from time to time, in digging holes for sugar canes, the stone is often boiled, and the water drunk to cure various kinds of ailments. A Chaldean cylinder, "on which a priest is represented as making an offering to a hatchet placed upright on a throne," has been published by M. de Longperrier, who has shown "that the Egyptian hieroglyph for *Nouper*, God, is simply the figure of an axe." An incident narrated in the last number of this *Bulletin*‡ proves that we need not go far to meet with the rooted belief in supernatural powers residing in stone axe-heads. What may be the significance of the excised arm, or of the frog, I am unable to conjecture.

The second tusk-holder differs from the one I have described, in a few details of the head-dress—which shows that it was cast from an independent mold; and in the substitution, for the frog, of another symbol, for which I am unable to suggest a name, unless it be a much conventionalised leopard's head.

In his letter to me Commander Bacon writes, that in his opinion the Beni had no form of idol in the ordinary sense. "I do not believe in any of the figures being gods of the Beni; nor do I believe they were far enough advanced to worship any person or figure. The nearest approach to idols, were the carved tusks in the bronze heads in the Juju houses; but I do not believe even these were objects of worship."

Both the tusk-holders, like some of the other pieces in the collection, are of so rich a terra-cotta colour, that they might easily pass, on a superficial inspection, for clay. Whether this colour results from a fine coating of laterite, from the clay molds in which they were cast—which would, of course, be removed from the chiselled portions—or is a *patina* artificially produced, or naturally arising from long exposure to the air, is not yet determined. If these (and other) figures be of the antiquity, which there is some evidence to show they are, it appears rather surprising to find, after so long an exposure to the air and weather, any clay adhering to them; and practically no oxidation of the metal.

---

* Bull. Liverp. Mus. i. p. 26.

† Adventures and Missionary Labours in the Interior of Africa. By T. J. Bowen, p. 315-316 (1857).

‡ Tom. cit., p. 28.

VI. The well-modelled feline, represented in Fig. 9. (Register number: 21.12.97.3), requires little description; its spots are sufficient to identify it. It differs from all the other castings the Museum has acquired, in being hollow. This leopard was found, along with a massive ivory kneeling figure—now also in the Museum,—on the altar of a dwelling-house, as I learn from Mr. F. Roth, the District Medical Officer of Warri, in H.M. Niger Coast Protectorate, and Advance Surgeon to the flying column during the punitive expedition, from whom the Museum acquired this notable specimen. "Every native house," he writes, "in Benin city had a little room, or open raised place, near the entrance, in which figures were placed, just like the little altars which one sees in Roman Catholic countries. These little Juju houses, nearly always placed near the entrance, seemed to guard the place and keep off evil spirits. . . . Most of the figures were in clay, painted white; the brass and ivory ones were not painted but covered with blood, human or otherwise—otherwise being that of dogs, birds, small animals, &c." Consul-General Moor, in his official report, observes that in these private Juju rooms "rubbish of all sorts was collected as offerings, carved sticks, rough plaster figures, and cowries being the most frequent."

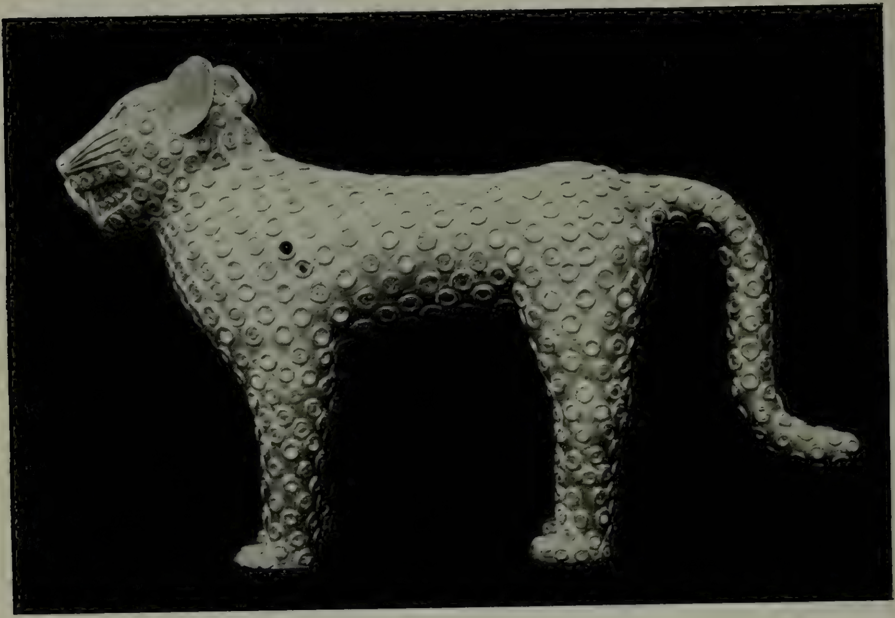


FIG. 9.—HOLLOW-CAST LEOPARD, WITH ENAMEL SPOTS.

The spots on the animal were evidently cast as hollow thin-walled pits (with raised edges), which have here and there corroded through. These pits were afterwards filled in with a yellow porcellaneous glass, or enamel, still occupying most of them, which must have been made on the spot, and applied in a fused condition, for the discs have no appearance of having been cut out and stuck on. The province of Nupe, some few hundred miles to the north east, was long noted, as Mr. Bowen relates, for its glass manufacture, of which it was the only seat in West Africa, the secret being there known to only a few craftsmen. According to Lieut. Vandeleur* the people of Bida, the capital of Nupe, are still workers in glass.

Commander Bacon informs me that he saw also in Benin figures of leopards made of ivory, with "looking glass spots."

Our figure itself was apparently put to some use, for there is on the crown of the head a round opening, the diameter of two or three fingers, on the hinder margin of which a broken hinge indicates that it had a lid, which it now lacks; in any case, it was probably the powerful protecting fetish of the house in which it was found. Commander Forbes, in his "Dahomey," tells us that "the Fetish of Abomey is the leopard, and of Wydah, the snake." Both animals appear to have been powerful fetishes in Benin also, where they, no doubt, are, or were, as in Dahomey, sacred and protected against capture, except by leave of the priests.

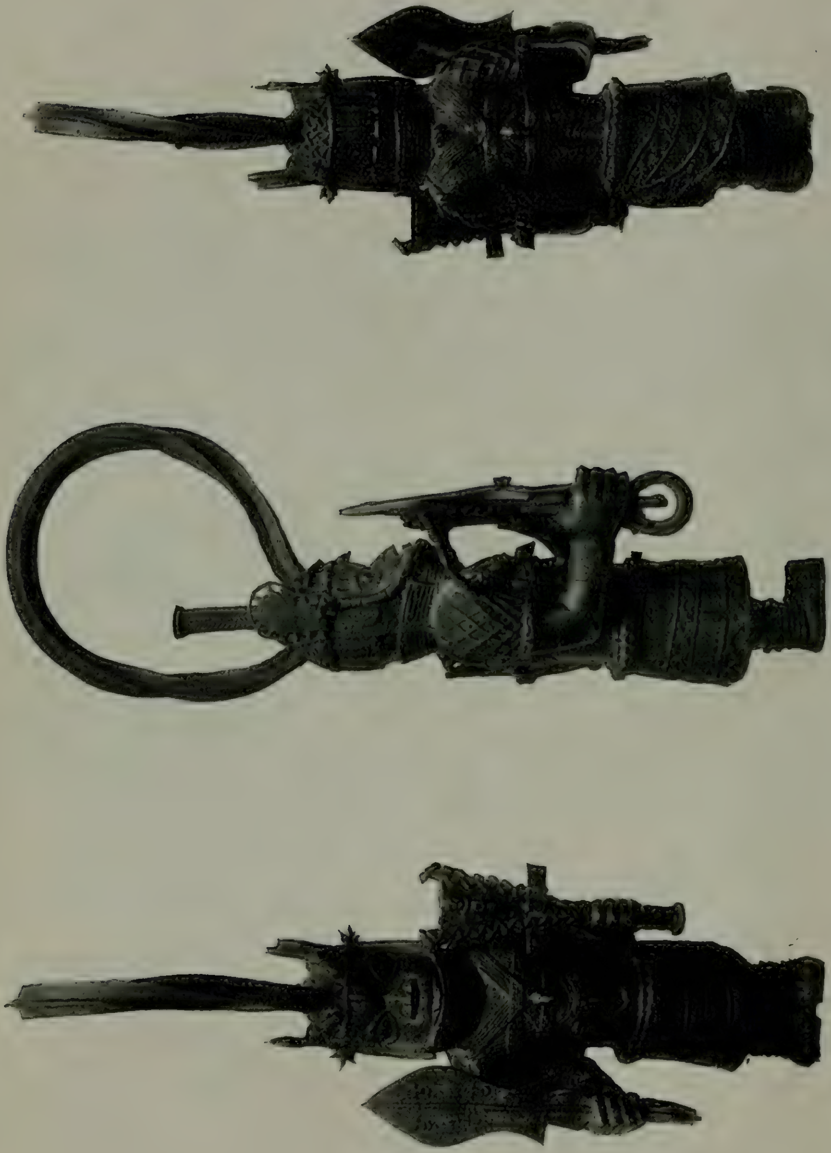
The extreme length of this figure is 550 mm.; its height from ground, at the root of tail, 233; from the crown of the head to the ground, 292, and across the head, 95.

VII. The four following solid-cast statuettes (of each of which a front, a side, and a back view, are given in Figs. 10, 11, 12, 13), though very similar to each other in general appearance, all differ considerably in size and in numerous other small details; so that for each the artist had to make a new model, and the artificer a fresh mold. In all of them, the head-dress, the robe, and the objects carried in the hands, are elaborately ornamented with raised designs and delicate pierced work which must have presented great difficulties to the founders.

The head-dress, seen in *b*, Fig. 10 (Register number: 7.10.97.1), is very similar to that in the Tusk-holder (Figs. 7, and 8), except that it has, projecting from both the side rosettes, a stiff cockade of woven cotton, or, perhaps, of bead-work, with an ornamental margin of beads and coral; a large feather is stuck behind the left cockade. The crown of this head-dress terminates in an erect circular spike of fine bead-work, overarched by a disproportionately large twisted loop of copper (Fig. 10, *b*) with a chiselled floral pattern upon it. From the lower edge of this wonderful helmet, depend, along the side of the face, a large stiff curved elephant-tusk like horn, a cord of coral beads reaching right down to the hem of the robe, and a plait of the only hair his shaven head presents, succeeded by more strings of coral round the back of the head. The neck is encircled, and the chest, shoulders and back, are enveloped, in a royal panoply of coral beads. From under these coverings there emerges, on the shoulders, a netted sleeve, perhaps a sort of mail, reaching half way to the elbow. The rest of the arms are bare, except for the wide bracelets of coral, which, however, are narrow when compared with the chain-like anklets that enrope the legs. All this coral display bespeaks a person of no mean dignity; for, to quote again from Burton, who, speaking of "Okalla, the guide and entertainer" allotted to his party by the Captain of War, remarks that he was "a man of consequence, as is proved by his wearing anklets as well as a necklace of coral;

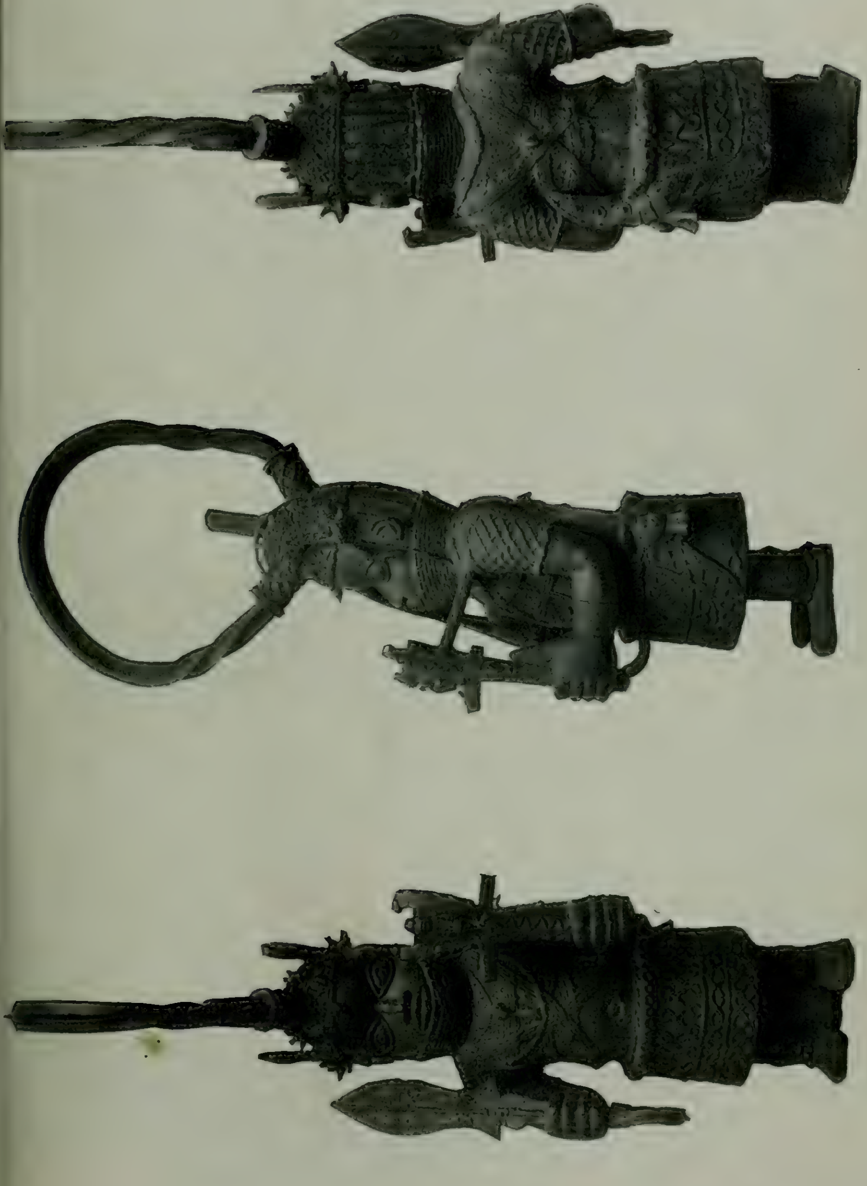
---

[*] Journ. R.G.S., Vol. x. p. 362 (1897).



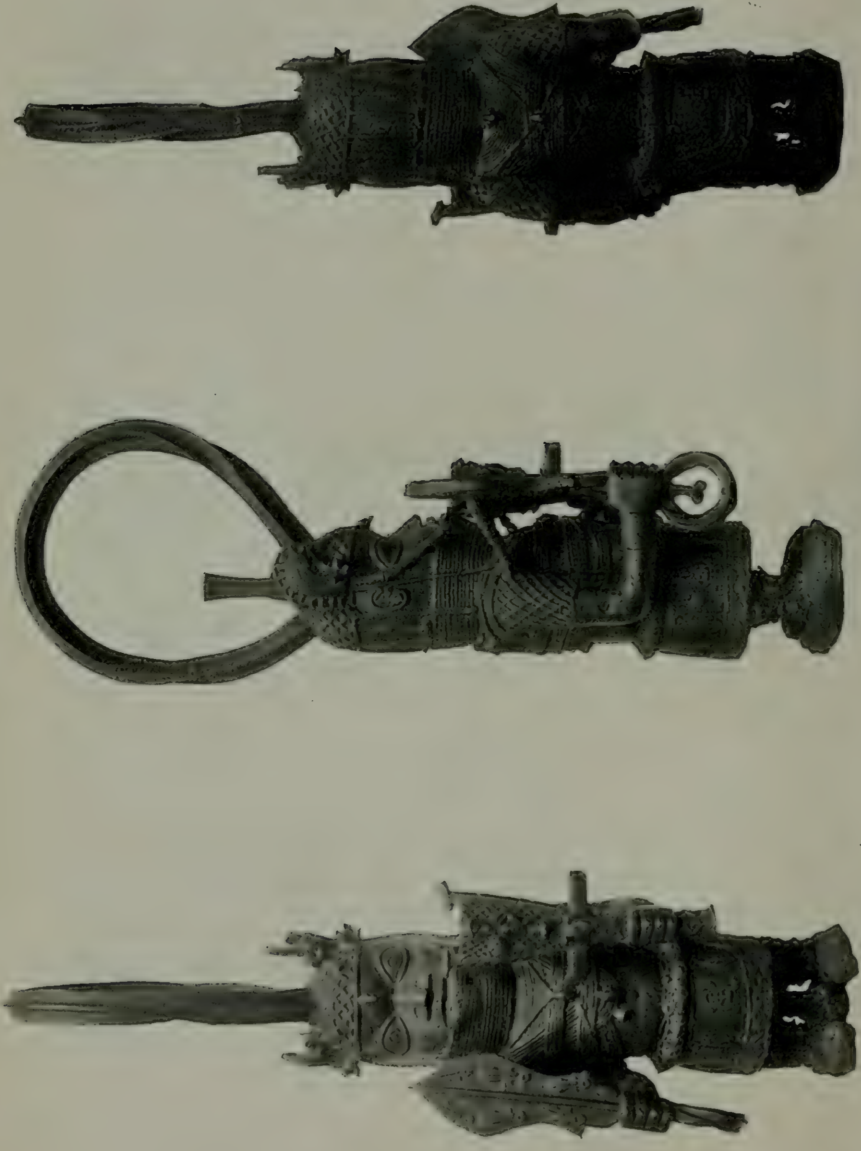
(a) (b) (c)

Fig. 10.—(a) Front, (b) Side, and (c) Back View of Statuette of supposed King of Benin.



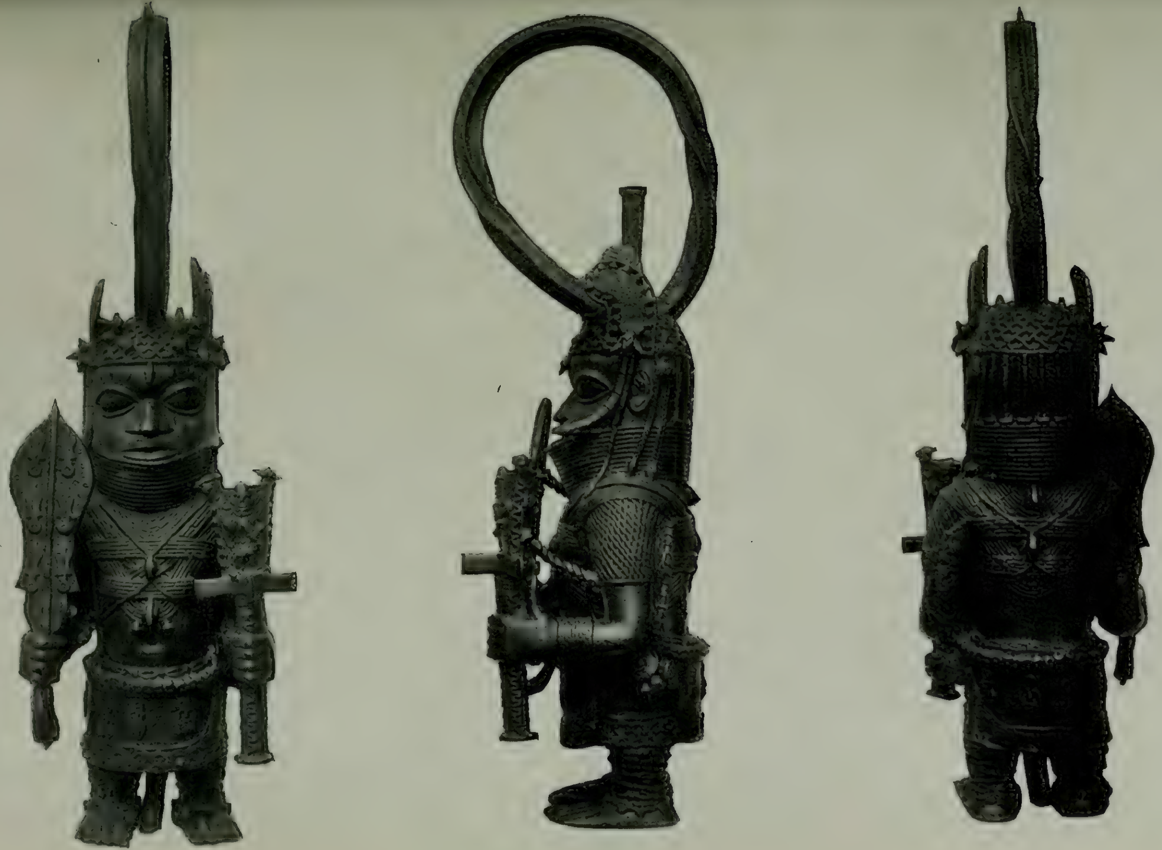
(a) (b) (c)

FIG. 11.—(*a*) FRONT, (*b*) SIDE, AND (*c*) BACK VIEW OF STATUETTE OF SUPPOSED KING OF BENIN.



(a) (b) (c)

Fig. 12.—(a) Front, (b) Side, and (c) Back View of Statuette of supposed King of Benin.



(a) (b) (c)

Fig. 13.—(a) Front, (b) Side, and (c) Back View of Statuette of supposed King of Benin.

the latter may be compared with the insignia of the C.B., the former with those of the G.C.B. They are always the gift of the King, who keeps them in his possession, and punishes any counterfeiting with death. According to Bosman, a man losing his coral collar, loses his life. Coral is the favourite ornament in this part of the world; not in beads, but in pieces like bits of 'churchwarden'-stem. A string of this article is a regal present."

To a stout girdle, strung with small bells, is hung his kilt-like robe, with two embroidered bars, in a sennit pattern similar to that to be seen on many Anglo-Saxon objects. Between these bars, the robe is 'figured' with long-haired human heads, and the fish-slice like knife (?), held in the right hand of the statue. The ends of the robe meet, on the left side, in a tasselled knot, or bow, to which are chatelained a bearded mask and a series of small bells, and from which an ornamental plate of metal, or a stiff cotton-woven, or beaded, disk, or, perhaps, it may be the stiffened end of the garment itself, stands up behind the arm, reaching nearly to the shoulder, its edge bound with "churchwarden pipe-stalk" pieces of coral, alternating with button like beads.

In the right hand is held a fish-slice like knife (Fig. 10, *a*) with a short handle, ending in a loose ring, its blade ornamented with miniatures of itself. These have been supposed, by some, to represent executioners' swords, but Commander Bacon, in his letter to me, says: "We found many of them [the fish-knife so often recurring on the plaques] brass and electro-plated. One thing they were *not*, and that is, executioners' swords, which were of quite a different shape." Burton also mentions, among the things seen in the Fetish-house visited by him in 1862, "plates of thin iron, perforated and shaped like a large fish-slicer, with a shank and a terminating ring—mysterious articles used for 'making play' at festivals."

The left hand of the statuette holds a still more elaborate object (Fig. 10, *a*), what I believe to be a long-handled goblet. From the underside of the bowl radiate four cruciform spokes, in which the handle terminates. Up each quadrant of the handle crawls a serpent, while two others ascend by the sides of the bowl, each as if attacking a negro's head, resting on the lip of the cup, above it. On the front and back of the goblet is depicted a man wearing about his loins a skirt, similar to that in the statuette, but with a striped garment over the upper part of his body, and with a necklace, instead of a collar, of coral about his neck. He holds a key-like implement in his right hand, and a staff in his left.

The tribal marks on the face of the statue are the same as on the face of the Tusk holder (Fig. 7), except that the perpendicular lines over the inner corner of the eyes are absent, while the longitudinal scorings, characteristic of Benin natives, are present down the sides of the abdomen.

The spirally twisted loop of copper, overarching the head, would appear not to have been cast with the rest of the figure, but to have been independently made and chased, and then, if not attached to the mold, to have had its free ends inserted into the metal before it had cooled; for it can be seen that some of the molten metal ran up for a short distance on the sides of the loop, taking the impress of the pattern chased upon it.

All four figures have been most accurately finished with the punch and chaser, and their surface finally very carefully smoothed.

From the centre of the body, in all the statuettes, a strong copper prong or spike, 175 mm. long (broken off in two of the figures), protrudes from between the legs, for fixing it either into the ground or into some wooden or other support.

The height of Fig. 10. from the tip of the spike of the helmet to the feet, is 465 mm.; from the top of the overarching loop to the feet, 580 mm.; and from the top of the helmet-crest to the lower border of the robe, 410 mm.

The officer, who looted these statuettes, tells me that he was informed by a Juju man, through an interpreter, that they represented four generations of Kings of Benin. This may or may not be correct. Still, in 1862, when Burton was in Benin City, I find that he has recorded, in regard to the Fetish-house attached to his host's dwelling (which, he says, had once been a fine building, but whose roof had then fallen in), that its most remarkable feature was "a high altar conspicuous for the statues of the reigning King and Queen." These figures were probably of clay, like those made by the Fantee women, "who, upon the death of a great man, made representations of him sitting in state, with his wives and attendants seated around him. They are simply monuments to their memory, like the statues of our own great men . . . they remain till they crumble to pieces" *(Brodie Cruickshank).* None of our statuettes, however, will fit the description of these Ganesa-like Majesties, as Burton calls them.

The second (Fig. 11) of the quartette, (Register number: 7.10.97.2) closely resembles the first; but differs in the helmet having a shorter spike, and in its having two elaborate sheaths (Fig. 11, *b*) before and behind, for the reception of the ends of the spirally twisted loop, showing that this extraordinary appendage is not merely a handle to the figure, as I was inclined at first to suppose, but is really a portion of the head gear. The goblet in his left hand (Fig. 11, *a*) has also a shorter handle, and is less carefully modelled; the human figure upon it appearing only on the front, and, although in more prominent relief, its details are less elaborately wrought. The robe is embellished with three rows of embroidery, whose "sennit" pattern forcibly recalls the ornamentation seen on Anglo-Saxon buckles in the Bryan Faussett collection in the Museum. The termination of the dress, behind and above the hip-knot, here more resembles a metal plate than its arrangement in Fig. 10. The face, which shows no tattoo or tribal marks, has been chiselled and polished with great care.

The total height of this statuette is 595 mm.; and its circumference round the hem of the dress, 340.

The next (Fig. 12) of the series (Register number: 7.10.97.3) differs from the others only in details of its intricate ornamentation. The coral-bead dress has a small bell hanging down in front. The termination of the robe, behind the left arm, here resembles a disk of braided cord, with its margin strengthened by coral beads. The 'flowering' on the robe shows the same patterns as in Fig. 10. namely, bearded human heads and fish-slicers, but in the present instance they are less conventionalised. The tattoo marks on the face consist of lines down the forehead over the inner corner of the eyes, without the wart-like scars over the outer corner seen in most of the others. The total height of the statue is 648 mm.

The last of the quartette (Register number: 7.10.97.4) represented, like the others, by three views (Fig. 13), has the loop over the head beautifully chased. The projecting wart-like tribal marks over the outer corner of the eyes are present, but the two lines over their inner angles are absent. The height of this figure is 680 mm.; and its circumference round the lower edge of the robe, 395.

The above short account we have given of these castings, and an inspection of the accompanying illustrations, must have raised in the reader's mind the questions: If these are the works of the Benin people, whence did they derive their instruction? Was it an art developed among the Beni; or only the clever imitation of the handicraft of foreign prisoners or dwellers among them? Or were these "bronzes" entirely the work of foreigners? At the present time it is impossible to answer these queries or to do more than make suggestions, and to institute comparisons between these works and those of various races in Africa and elsewhere, or with the descriptions of them left by various observers.

The City of Benin has been 'renowned,' since it first was certainly made known to Europe, in the sixteenth century, by the celebrated navigators of that epoch, the Dutch and the Portuguese. Since then its fame has been more or less before the world, from accounts partly by exploring traders, who have personally visited the city, partly by those who have collected information from natives of the region. It long had the reputation of being the most powerful kingdom in West Africa, "a City of that largeness," to quote from Ogilby's *Africa*, "as cannot be equall'd in those Parts, and of greater civility than to be expected among such Barbarous People. . . . By the King's order yearly festivals are kept in commemoration of the deceased Kings; wherein they make horrible sacrifices of Men and Beasts to the number of four or five hundred, but never more than three and-twenty in one day." On the cruelties of these "custom days" has chiefly rested, during later times, the celebrity of Benin, and the powerful Fetish which has hedged about its deity-king who, with the aid of his priests, was an object of adoration and of terror to those living within a wide circuit of the city.

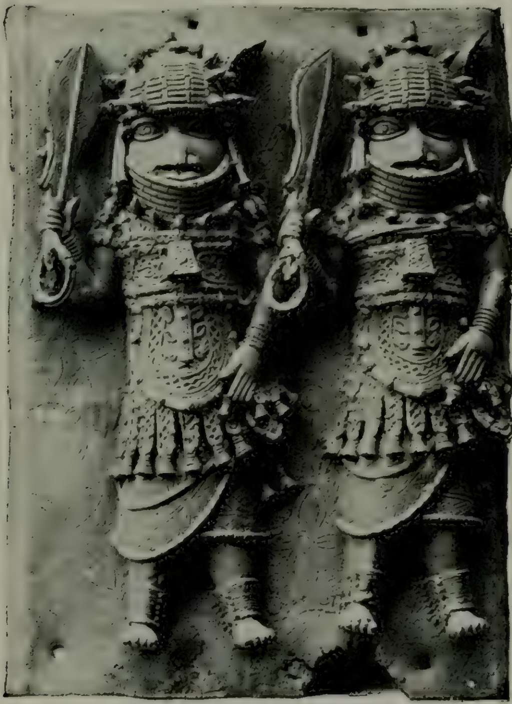


FIG. 14.—PLAQUE IN BRITISH MUSEUM.

Although we have records, more or less fragmentary, relating to Benin, scattered through the past two or three hundred years, none of its historians have related anything to prepare us to expect from it objects of art so numerous, and of such surprising excellence; nor do they appear to have heard of artists or craftsmen living there capable of producing them. The nearest approach to the plaques, already mentioned as being so abundant, are the "melted copper, whereon are Ingraven their Warlike Deeds and Battels, kept with exceeding curiosity," which covered the supporting pillars of the King's house, about 1630, as recorded in Ogilby.

The fact of there being, on some of the plaques, persons represented as attired in the dress of the seventeenth century (one of which is figured in the *Illustrated London News*, Oct. 16, 1897); and that the statuette in the Mayer Museum (Figs. 5, and 6) holds a flint-lock gun, prevents our dating those particular figures earlier than the year 1630 (the date of the invention of the flint-lock), and not improbably considerably later. The great similarity in the designs and the general appearance of the work, strongly incline one to believe that they were all made, if not by the same individual artist, at all events, by, or under the direction of, others who had acquired his technique and touch. By the courtesy of the Proprietors of the *Illustrated London News* I am able to reproduce (Fig. 14) one of the plaques in the British Museum, to show the similarity of its work to that in Fig. 12. The same touch is evident on our supposed royal figures as on many of the plaques.

Such details as the emblematic objects round the large tusk-holders (Figs. 7, and 8), show that whoever the artist was who designed these works, he had become well acquainted with the religious, or fetish, feelings and ideas of the people, their ceremonies and customs, and with the minutest details of their various garments, ornaments, and accoutrements.

The period over which their manufacture extended could not, it seems to me, have been of long duration; for though the artists, who fashioned these metal works, were influenced by, or copied, foreign importations, the whole series strikes us as presenting little evidence of the changes that one would expect, if long periods elapsed between the earliest and the latest modelled objects, or if the work of many artificers were represented. Though much brass work is manufactured in West Africa, and has been for ages, I know of none that could well be considered precursors of, or successors to, the peculiar kind described in this paper, or showing any of its characteristics. It is interesting, however, to find existing till to-day in Benin City, objects of the same form as are represented in the pieces the Museum has acquired, such as the fish-slice-like instruments, seen in the Fetish-houses in Burton's time, and by the officers of the expedition in February last.

The composition of these metal objects has been spoken of, in the press and by most of those who have described them, as bronze; but the specimens acquired for the Mayer Museum cannot be truly designated as of that alloy, which usually contains 15 per cent. of tin to about 85 per cent. of copper. Analyses, made for me by Mr. Watson Gray, F.C.S., of Liverpool, of the four statuettes (Figs. 10, 11, 12, 13), and of the small female figure (Fig. 4) are given below:—

	A Fig. 10.		B Fig. 11.		C Fig. 12.			D Fig. 13.		E Fig. 4.
	Body.	Prong.	Body.	Prong.	Body.	Prong.	Scales.	Body.	Prong.	Female Figure.
Copper . .	84	92	83	95	88	98	72	62	64	84
Lead . .	4	1	3	1	3	*trace*	4	2	3	3
Tin . . .	—	7	—	—	—	—	*trace*	—	—	3
Antimony .	—	—	—	—	—	—	—	—	—	*trace*
Bismuth .	*trace*	*trace*	*trace*	—	*trace*	*trace*	—	—	—	—
Iron . .	*trace*	*trace*	*trace*	*trace*	*trace*	*trace*	*trace*	*trace*	*trace*	*trace*
Zinc . .	12	—	14	4	9	2	24	36	33	10

It will be seen from the above table that the body of the statue, Fig. 10, is composed (Col. A) of brass, with 4 per cent. of lead; but that its supporting prong, which was apparently inserted into the model before casting, is a bronze containing only half the usual proportion of tin, but no zinc. Its composition approaches that of a casting from Peru, containing 94 parts of copper to 6 of tin, spoken of by Sir John Evans as 'bronze.' A figure of an Egyptian Osiris, analysed by Dr. Gladstone, showed similar proportions, *i.e.*, 87·1 copper, 6·3 tin, 4·4 lead, with a trace of iron.

The small female statuette (Fig. 4) is the only other of the Benin metal work, acquired by this Museum, and as yet analysed, which contains tin (Col. E). All the rest are composed of brass, but the proportion of zinc in each varies very considerably. The analysis of the prongs of Figs 11, and 12 (Cols. B and C) show that they are nearly pure copper, having only 4 per cent. and 2 per cent. of zinc respectively; strangely enough the metal which had overflowed up the loop, and of which I had some scales examined, contained 24 per cent. of zinc (Col. C). The main body of the metal of these objects is of a copper-zinc-lead compound, with traces of iron in all, and of bismuth in three and antimony in one of the figures. Both the prong and the body of the statuette, Fig. 13. (which, by the way, passed through the fire that overtook the Hospital and a portion of the city shortly after its capture), are practically of identical composition, approaching an alloy which is very easily cast, known as "Gedge's metal."

The analyses of our castings do not, therefore, throw much light on the question, whence the metal, of which they are made, was obtained. Copper is abundant in many parts of West and Central Africa, and is a trade article from Katanga. The alloy, which, according to the analyses, they used in these statues, might have been produced by roughly adding to the molten copper, small quantities of old brass and lead utensils. Brass was, it is believed, known to the Romans, and was in use in England in the thirteenth century. At a later date its manufacture, encouraged by Queen Elizabeth, formed a considerable export trade between 1560 and 1660.

The process adopted in casting these solid figures was, no doubt, that known as *Cera perduta*, in which the object is first modelled in a very fusible wax. This model is carefully overlaid with a sufficiency of very fine clay (of which there is an abundance, of a red colour, in Benin and the neighbourhood), which has been prepared with special care, to form the mold. When the mold is dry a hole is made in it, through which, on the application of heat, the wax escapes, leaving the interior vacant to receive the molten metal. When the casting has cooled, the clay mold has obviously to be destroyed, before it can be seen what success has attended the operation. By this process, each individual article requires a model for itself, and only one casting can be obtained from one mold.

The skill and patience of the artist who modelled such elaborate head-dresses, ornamented garments, and intricate bead-work seen on the effigies of the supposed Kings of Benin, must be apparent to anyone who looks at the illustrations, Figs. 10, to 13.

The present natives of Benin are incapable of producing any work approaching these plaques and statues. No crucibles were found in the city; and no furnaces or appliances connected with metal casting were, so far as I can learn, seen there. With the exception of one blacksmith's shop, there was, as Commander Bacon has informed me, little sign of any native industry or evidence of much trade with the interior. "The Beni," writes this distinguished officer, "were a decaying race without doubt, and but very few attempts at ornamentation existed. A rude pattern, or a hand dipped in red (? blood) and printed on a wall, really represented the height of decoration in the houses, except the Palaver House and King's House, where the doors were overlaid with beaten brass, and a small pattern adorned the beams, with patches of looking glass." In 1862, Burton also noted that the "empire must have been long in decadence." The mystery that surrounds the makers of these wonderful art works, with all their intricate and elaborate details and undercutting, and the time and the place of their construction, cannot be resolved by the data we as yet possess.

The probability is that the art may have been brought to the West Coast Hinterland by some European trader, prisoner, or resident, who, observing the skill of these people in the modelling of clay-figures, such as we know the Fantee women were in the habit of fashioning, may have instructed them how to do the same in wax, and having overlaid their model with clay, showed them how to reproduce it in metal; and the art may have flourished only during the lifetime, or residence there, of these artificers, or for only a short time after their departure.

It is possible, on the other hand, that their knowledge of founding was derived from purely African sources. The ancient Egyptians knew how to cast in bronze, in which, however, there was no zinc.

The Benin "free men" and upper classes differ markedly from the slaves and lower orders, both in colour and features. Burton describes the latter as possessing negro features and a black skin, while the former have olive-coloured skins and tolerably regular features, a contrast, he notes, as great as between the English patrician and the wretched peasant of Western Ireland. Lieutenant Vandeleur, D.S.O., in the account of his journey, in the early part of this year, to Nupe and Ilorin (given before the Royal Geographical Society in May last),* also observes that the rulers of all the Housa States in the Western Soudan are a race known as Fulas, "by far the most interesting people in Central Africa," as Bowen calls them. "They are lighter in colour," continues Vandeleur, "taller and finer looking than the indigenous population. Their history is unknown, but they would seem to be an offshoot of the great race of Gallas in Somaliland and North-East Africa. Coming from the north, they gradually asserted their superiority, and conquered this country by means of superior military organisation and skill, and the havoc wrought by their cavalry." In the account given in Ogilby's *Africa*, from which I have already made several extracts, we are told that, in 1630, the King of Benin showed himself once a year to his people on horseback, "attended by three or four hundred Noblemen both on horseback and on foot," while to-day neither horse nor trooper is known in that kingdom.

Snake worship, also, according to Ratzel, existed among the Galla peoples; and the Abyssinians, before their conversion to Christianity, are said to have adored a large serpent. In Benin, if there was not snake worship, it is evident there was snake veneration.

Lieutenant Vandeleur mentions also the fact that the Fula cavalry had long-tailed ponies covered with gay trappings, and wearing high-peaked saddles. Among the ivory objects, acquired by the Mayer Museum from Benin, is a fine royal, or chief's, staff-head, of some age, as the colour, polish and wear upon it indicate, representing some high dignitary, wearing a curious tall, conical head-dress, unlike any other I have seen among the Benin loot, coral collar, and bell-encircled robe, and seated in a peculiar, high-peaked saddle, on a long-tailed and richly caparisoned pony.

Nupe and Ilorin, lying to the north of Benin, are provinces belonging to the Central Soudan, "a Mahommetan region stretching 3,000 miles across Africa, from the frontiers of Abyssinia on the East to the frontiers of French Senegal on the West †"; while Benin belongs "to the barbarous pagan states which line the Gulf of Guinea," where the natives are of the lowest order of civilisation. Commander Forbes, who visited Dahomey in 1851, remarks that some of the members of the Royal household "were distinguished by a pair of small silver horns, such as are commonly worn in the northern parts of Africa, and especially in Abyssinia."

---

* Journ. R.G.S. x. p. 357 (1897).

† Sir George Goldie, Journ. R.G.S. x. p. 371 (1897).

It seems not improbable, therefore, as another explanation of the presence of such high works of art in Benin, that, several centuries ago, the city may have been occupied by an offshoot of the same Central Soudan race with the leaven of Abyssinian or even Egyptian influences among them, as now occupies Nupe, a few hundred miles further north: but that, through intercourse with the low coast tribes, they became demoralised and gradually degenerated into their present low civilisation. The plaques and statues, discovered in the city, may, therefore, be the relics of a former high civilisation, or they may, as Commander Bacon suggests to me, have been the spoils of some campaign, kept as fetishes. When, however, their full history is elucidated, we shall undoubtedly recover more than one lost and unsuspected, but very interesting, chapter in the history of West Africa, and of the influences that have been at work there in remote times. In any case, the Museum is fortunate in having had the opportunity of making these splendid additions to its rapidly growing West African collection.[*]

---

[*] While these sheets were in the press, I was favoured by the receipt of a separate forward copy of Messrs. C. H. Read and O. M. Dalton's very interesting paper on *Works of Art from Benin City*, about to appear in the February part of the *Journal of the Anthropological Institute*, where those interested in this subject, will find much valuable information, and also a number of illustrations of some of the more remarkable plaques in the National Collection.

14 MAR. 98
BRITISH MUSEUM NATURAL HISTORY

The Bulletin

of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums (**H. O. Forbes, LL.D.**),

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals: but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The first number, issued on 4th August last, contains an INTRODUCTORY NOTE, giving a general account of the Museums, illustrated by three portraits and one view; a CATALOGUE OF THE *Psittaci* IN THE MUSEUM, containing descriptions of two new species, and illustrated by hand-coloured plates of three previously unfigured species; and NOTES FROM THE MUSEUMS AND AQUARIUM, illustrated by four process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. HENRY YOUNG & SONS, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net. per copy, or to subscribers at 8s. net per volume, payable in advance.

OCTOBER, 1898. Vol. I. Nos. 3 and 4.

BRITISH MUSEUM

Bulletin
of the
Liverpool Museums

Under the City Council.

CONTENTS.

PAGE
The New Museums Extension Buildings. Laying of the Foundation Stone (*With a Plate*) - - - - - 71
Description of a New Marine Spider from S. Africa, collected by Rev. N. Abraham, and presented to the Derby Museum. By R. I. Pocock (*Illustrated*) - - - - - - 75
Crab-Gall on Millepora. By Sydney J. Hickson, F.R.S. (*Illustrated*) - - - - - - 81
On the Type of the *Spotted Green Pigeon*, of Latham, in the Derby Museum (*With a Plate*) - - - - 83
Note on *Turdinulus epilepidotus* (Temm.) - - - - 83
Note on a Rare Species of Cyanocorax—*C. heilprini* (*With a Plate*) - - - - - 85
Notes on some Marine Invertebrates from Hilbre Island - 85
Catalogue of the Picarian Birds (Pici): Puff Birds, Jacamars, Barbets, Toucans, Honey Guides, and Woodpeckers in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson - - - - - - 87
On a Fragment of the Parcival of Wolfram von Eschenbach in the Mayer Museum. By Dr. R. Priebsch (*With Four Plates*) - - - 119

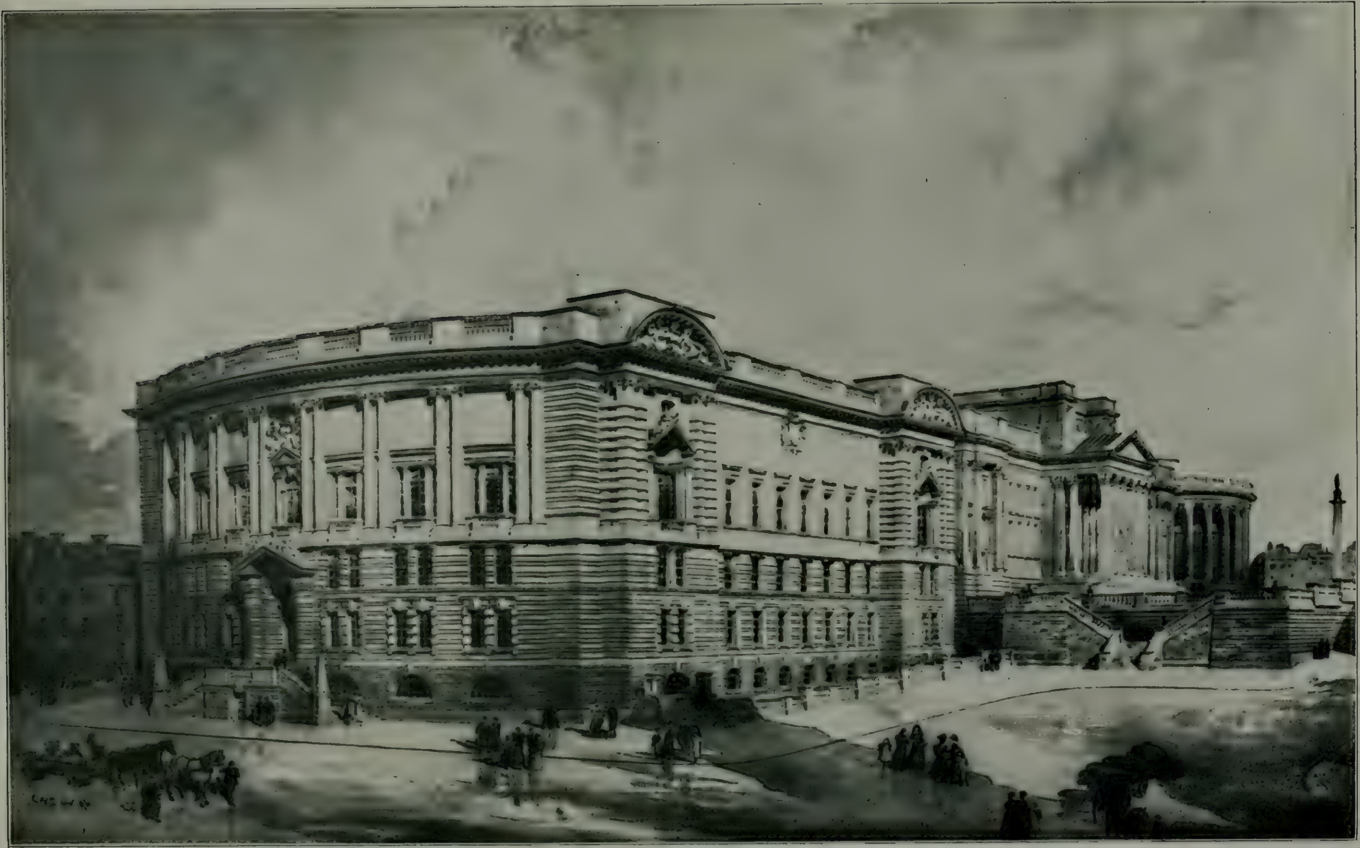
WITH TITLE-PAGE, CONTENTS, AND INDEX TO VOL I.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, South Castle Street,
and 23, Parker Street.

ISSUED 7th OCTOBER.

BRITISH MUSEUM NATURAL HISTORY



SWAN ELECTRIC ENGRAVING Co

THE NEW CENTRAL TECHNICAL SCHOOLS AND MUSEUMS EXTENSION BUILDINGS.

From the drawing of the Architect, EDWARD W. MOUNTFORD, Esq., F.R.I.B.A.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. I. OCTOBER, 1898. NOS. 3 AND 4.

The New Museums Extension Buildings.

Laying of the Foundation Stone.

THE present Museums Buildings were erected in 1860 by the late Sir W. Brown for the splendid Natural History collections bequeathed to the City of Liverpool by the XIIIth Earl of Derby in 1851. These were so extensive that the accommodation they required necessitated the building of what was, at that time, one of the largest Museums in England outside the Metropolis. Since that date the collections have been constantly added to, not so much by purchases, as by gift—some of them of the highest value—from donors possessing an interest in Natural Science, and appreciating, in advance of their time, the importance of that subject as a means of education, with the result that, to-day, every available foot of space in the Museums has long been occupied—every cellar even being stored to its utmost capacity—so that any intelligible arrangement of their contents has now become well-nigh impossible. Within the past decade, also, the change in the public attitude has been growing very rapidly towards an appreciation of Museums as institutions of high educational value and importance. This is due, no doubt, to the rapid increase of scientific and technological knowledge, and to the advocacy of no one in Europe so specially as Sir William Flower, who, by his writings, and, perhaps, principally by the methods, inaugurated by him, of displaying and labelling the specimens in the Natural History Museum in South Kensington, has made manifest, not the interest only, but the educational value of, the study of natural objects. The Corporation of Liverpool has been one of the first to recognise this advance in opinion in raising the City's Museum to the position of a first-class scientific Institution, by voting the necessary funds for its proper support, and keeping the collections abreast of the stream of discovery.

The additions—chiefly by purchase—to both the Derby and Mayer Museums have been within the last three or four years so specially numerous that since 1893 it has been evident to the Museums Sub-Committee of the Libraries, Museums, and Art Committee of the Council that increased space was urgently necessary.

The Technical Instruction Sub-Committee * (also a section of the same General Committee) then also found itself in the same position in regard to a central school to accommodate the more advanced classes, which were and are now being held in widely separated parts of the City, in buildings most of them ill adapted for teaching purposes.

A special Sub-Committee was therefore constituted in December, 1894, empowered to take immediate steps for the extension of the Museums, and for providing suitable accommodation for the Liverpool School of Science, Technology, and Art. The credit of overcoming the difficulties which beset the initiation of so large a scheme, and of arranging the preliminaries, is chiefly due to Sir William Forwood. Mr. Austin Taylor, M.A., the first Chairman of the Sub-Committee, devoted much time to the initial stages of the project, while his successor, Mr. Maxwell Hyslop Maxwell, Jr., has most ably and ardently carried forward the scheme to its present advanced stage.

The present Museum Buildings stand on a plateau sloping abruptly towards the west. An inspection of the ground and an exploration of the underlying strata revealed the gratifying fact that the rock-foundation on which the present Museums rest extended westwards further than was supposed, and that by excavating the slope, consisting of Permian rock, down to the level of Byrom Street, sufficient accommodation, three storeys in height, could be provided for the Technical Schools, while the Museum Galleries could be carried forward, on their present level, over the schools. The Technical Schools would thus be distinct and entirely isolated, and have their own entrance in Byrom Street.

This being so, designs with estimates for a building—whose requirements were sketched out by the Director of Technical Instruction and the Director of Museums respectively—were invited from a selected list of architects of eminence in England. In the summer of 1896 the designs of Edward William Mountford, Esq., F.R.I.B.A., of London, were awarded the first premium. The handsome and stately building so designed, which is represented on the plate facing page 71, will be 90 feet above the level of Byrom Street, and measuring from north to south 162 feet, and from east to west 190 feet, occupying an area of 27,000 square feet. The galleries of the Museum will run in continuity with those in the existing building, and will be undivided in any part of their course by walls or partitions. They will be of horse-shoe shape, and 420 feet in length, 33 feet in breadth ; the lower—to contain the Invertebrates—19 feet in height, while the upper—for the Vertebrates—will be 27 feet. The lower floors will be lighted from the side, and the upper from the roof. New and well-appointed laboratories—which, when the first building was erected, had been entirely overlooked, or, at that date, considered quite unnecessary adjuncts to a museum—for the Director and his assistants, are also to be provided, as well as new administrative offices.

The new buildings will be of brick, faced with Stancliffe Stone from the quarries at Darley Dale, in Derbyshire, the same which furnished the material of which St. George's Hall is built. They will be the largest built by the Corporation of Liverpool for fifty years, and the largest since the erection of St. George's Hall, and, next to it, the largest building in the city. The front to Byrom Street rises from the very edge of the original "Pool," and is close to the site where the old bridge connected Liverpool with the heath.

The ventilation and heating of the buildings will be carried out by Mr. Key, of Glasgow, on a system which provides upwards of four miles of three-inch pipes, discharging into every room purified and warmed air to the amount of 8,000,000 cubic feet per hour. The stairs are of stone, the floors

---

* The Technical Instruction Sub-Committee has since been constituted a Standing Committee of the Council, under the chairmanship of Mr. W. E. Willink, M.A.

of concrete, and the roof chiefly of steel, so as to reduce the chance of fire to a minimum. In case of which, however, an emergency staircase will provide exit for visitors in the Museum.

On the 25th of June, 1896, Mr. Mountford's designs were accepted by the General Committee, and on the 2nd of July they were approved of by the Council, which in due course authorised the Committee to have tenders called for from the best known contractors in Liverpool for the erection of the building.

On the 30th of September, Messrs. Henshaw's estimate was accepted by the Committee, and finally approved of by the City Council on the 7th of October, 1897.

The work of excavating the rock, of which the slope extending west of the present Museums, is composed, was commenced on the 1st of November, 1897; and since then till the end of June, 1898, nearly 30,000 cubic yards of sandstone had been removed, and much actual building work accomplished.

On the 1st of July last the foundation stone was formally, and very appropriately, laid by Alderman Sir William Bower Forwood, who has, for many years, been Chairman of the Standing Committee in charge of the Libraries, Museums, and Art Gallery, and to whose energy and powerful advocacy, not only the approaching realisation of this much-needed extension of the two Departments of Technical Instruction and the Museums, are, in a very special manner, due, but also the large increase and development of the two other Departments under his Chairmanship, the Libraries and the Art Gallery.

The proceedings, presided over by the Lord Mayor of the City, Alderman John Houlding, were graced by the presence of the Lady Mayoress and a large number of ladies. The Aldermen and City Councillors; the chief officers of the Corporation; the architect, Mr. Mountford; the Principal and Professors of University College, and many others interested in Scientific and Technical Education were also present. Mr. Maxwell Hyslop Maxwell, Jr., the Chairman of the Buildings Extension Sub-Committee, after giving an account of the circumstances which led up to the inception of the work, and of the extent and construction of the buildings, requested Sir William Forwood to lay the Foundation Stone, which he performed with the customary ceremonial. This stone, a block of Aberdeen granite, weighing 3½ tons, has a polished face, which will, in the completed buildings, appear as a tablet on one of the inner walls of the entrance hall of the Technical Schools, in commemoration of the important proceedings of the day. It bears the following inscription:—

CITY OF LIVERPOOL
TECHNICAL SCHOOL AND MUSEUM.

———o———

THIS FOUNDATION STONE WAS LAID ON THE
1ST DAY OF JULY, IN THE YEAR OF OUR LORD
ONE THOUSAND EIGHT HUNDRED AND NINETY-EIGHT,
BY
ALDERMAN SIR WILLIAM FORWOOD,
CHAIRMAN OF THE LIBRARY, MUSEUM, AND ARTS
COMMITTEE OF THE CITY COUNCIL.

———o———

THE RIGHT HON. ALDERMAN JOHN HOULDING,
LORD MAYOR.

MAXWELL HYSLOP MAXWELL, JUNR., Esq.,
CHAIRMAN OF THE BUILDING SUB-COMMITTEE.

WILLIAM EDWARD WILLINK, Esq., M.A.,
CHAIRMAN OF THE TECHNICAL INSTRUCTION COMMITTEE.

MORRIS PATERSON JONES, Esq.,
CHAIRMAN OF THE MUSEUM AND MAYER COLLECTION SUB-COMMITTEE.

EDWARD WILLIAM MOUNTFORD, Esq., F.R.I.B.A.,
ARCHITECT OF THE BUILDING.

HARCOURT E. CLARE, Town Clerk.

On the stone being "well and truly laid," Sir William Forwood gave an interesting address, in which he said the City Council, by that day's proceedings, announced to Liverpool that they believed that Technical Instruction had come to stay with them; that it was now part of the life of the people; and that it was worthy of that magnificent home. This building would complete what he believed would be the most unique group of buildings in the world. This building, he might say, was for the higher technical education—for educating the captains of labour, and not merely the artisans, in a way that would enable them to meet the competition of Germany. The Germans had had these superior schools for years, and had been turning out a large number of expert and scientific men such as did not exist in England. They, however, hoped to make them exist in Liverpool, and he also hoped that this building would enable them to start in Liverpool many new industries that would give employment to the surplus population, and especially to females.

Speaking of the accommodation which would be afforded to the Museum, Sir William reminded them that it had been founded by a bequest by the XIIIth Earl of Derby, some sixty years ago, and had been strengthened year by year by purchase. They were able to display only about one-half of their collections, and even that was so crowded that it was impossible to attempt any classification. This building would enable them to unpack and arrange scientifically the whole of their treasures, and in a short time they would have a Museum unequalled out of London. When visiting Rome, Florence, Venice, and Athens, they were attracted there, not by what the Cæsars and Doges had done, not by the spoils of war, but by the monuments of art and the stores of literature which were left behind in these cities. In the same way, he hoped that these buildings would tell future generations that while they had been strenuously engaged in commerce, they had not been forgetful of the intellectual welfare of the citizens, knowing that by doing so they were promoting public morality as well as the material prosperity of the people.

Mr. Willink, Chairman of the Technical Instruction Committee, proposed, and Mr. Austin Taylor seconded a vote of thanks to Sir William Forwood; while, after a similar expression of thanks to the Lord Mayor, moved by Mr. A. F. Warr, M.P., seconded by Mr. M. P. Jones, Chairman of the Museums Sub-Committee, an adjournment was made to the Picton Reference Library, where a reception was held by Lady Forwood and Mrs. Willink, on behalf of the two Committees chiefly interested in the proceedings.

Description of a new Marine Spider from S. Africa, collected by the Rev. N. Abraham, and presented to the Derby Museum.

By R. I. Pocock,[*]

Of the British Museum (Natural History).

The following description of, what appears to be, a new species of spider, is based upon an adult female example which, together with some immature specimens, was presented to the Derby Museum by the Reverend N. Abraham, who collected them at Wynberg, S. Africa.

The existence of marine spiders, living in rocks on the shore, is no new discovery. Several have been described from various parts of the Eastern and Australian seas, and one of the same group, as mentioned below, was recorded not long since from S. Africa. No account, however, was given of the habitat of this spider, so it may be fairly claimed that the species forming the subject of the present paper, is the first spider certainly known to be marine, that has been recorded from Africa.

The distribution of the family *Desidæ*, which has been established for these marine spiders, is exceedingly interesting, inasmuch as the restriction of the genera, so far as is at present known, to the seas of S. Africa and of Australia and Eastern Asia, furnishes another instance of similarity between the fauna of the Australian and Ethiopian Regions, and supplies another item of evidence in favour of a former land connection between the two countries.[†]

Paradesis, *gen. nov.*

This new genus, and the allied form *Desis*, which ranges from Singapore to New Zealand, may be recognised by the following tables :—

a. Four eyes of posterior row sub-equally spaced, distance between posterior median eyes at least as great as distance between the anterior lateral and anterior median on each side.
Desis, *Walck.*

b. Four eyes of posterior row unequally spaced, space between the medians only a little more than half the space between the median and lateral on each side; space between posterior medians much less than space between median and lateral of anterior row.
Paradesis, *gen nov.*

Paradesis tubicola, *sp. n.*

Colour.—Cephalothorax and mandible chestnut red ; cephalic region of the carapace darker than the postero-lateral portions; legs and abdomen greyish brown.

Carapace covered with a clothing of fine erect hairs, a little narrowed in front ; width of head about two-thirds the length of the whole plate ; ocular area apparently about six times as wide as long ; space between anterior median eyes less than their diameter ; space between posterior medians about three diameters.

---

[*] The Director begs to thank Mr. Pocock for so kindly complying with his request to describe these specimens.

[†] For further evidence supporting this connection *cf.* "The Chatham Islands: their Relation to a Former Southern Continent." By Henry O. Forbes. Supplementary Papers, R.G.S. III, 1893.

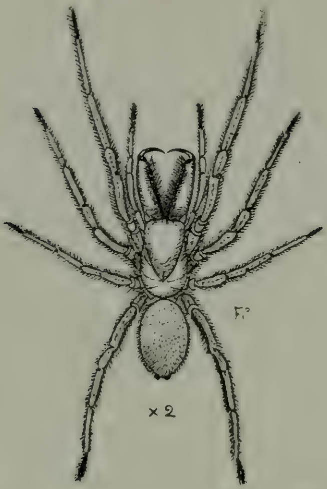


FIG. 1—*Paradesis tubicola*. ♀. TWICE NAT. SIZE.

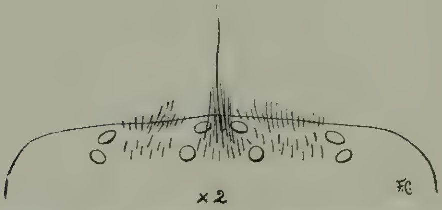


FIG. 2—*Paradesis tubicola*. FRONT OF HEAD, SHOWING ARRANGEMENT OF EYES.

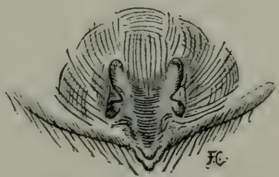


FIG. 3—*Paradesis tubicola*. VIEW OF VULVA.

Mandible nearly naked above; basal segment a little less than length of carapace, armed below with two teeth behind and six farther back, in front; fangs not sinuate, the inner edge finely serrulate.

Legs.—First, much the longest, more than three times the length of the carapace; fourth, a little longer than second; third, shortest; all covered with a clothing of fine erect, or obliquely upstanding hairs, intermixed with which, especially towards the extremities of the legs, are some curiously hooked hairs; at the ends of the protarsi of the second, third, and fourth, the hairs form a thickish dark coloured cluster.

Abdomen and ventral surface of cephalothorax covered with a thick coating of fine upstanding hairs.

Vulva consists of a plate which ends behind, in a triangularly pointed process; in front, it is deeply excavated, the excavation being surmounted anteriorly by a conspicuous arch, from each side of which a stout, though short, process projects inwards over the hollow.

Measurements in millimetres.—Total length of body, 11; length of carapace, 5·3; width of head, 3·3; length of basal segment of mandible, 5; length of first leg 19, of second 14, of third 12, and of fourth 15·5.

Locality.—Wynberg, S. Africa, in the interstices of the masses of *Tubicola*, within tide mark.

One other species apparently referable to this genus has been recorded from S. Africa. This was described by Mr. O. P.-Cambridge as *Robsonia*[*] *formidabilis* (P.Z.S. 1890, p. 625, pl. liii, fig. 5). Nothing was recorded of its habits. No doubt, however, as Mr. Cambridge suggested, the species will prove to be marine. *P. formidabilis* and *P. tubicola* may be separated, according to the description of the former[†] by the following features:—

a. Legs entirely destitute of spines (according to Cambridge).
formidabilis, *Cambr.*

b. First leg unspined; second, third, and fourth with three strong spines at the extremity of the protarsi beneath; tarsi of third and fourth with about half-a-dozen spines, arranged somewhat irregularly in pairs; tibiæ of third and fourth, with an inferior apical pair of long slender spines.
tubicola, *sp. n.*

Mr. Abraham has communicated, in a letter to the Director of Museums, the following interesting account of this spider:—"About a year ago, or more, an old friend of mine, Dr. Becker, was paying me a visit, and we went to the seaside to collect sea-weeds. While on the shore my friend asked me if I had ever found spiders living in the sea. I had not. He then asked me to keep a look-out in the tubes of *Tubicola*. I soon found a mass of these structures, and, breaking off a large piece, I brought it out of the sea. We then began to break up the mass of tubes, and soon found two spiders, which were what my friend called, sea-spiders. Now, since that time, I have made a study of these spiders, and have kept them in my marine aquarium, and have become familiar with them. I must now, in brief, tell you one or two things of interest. First, the spiders can always be found in the tube masses of *Tubicola*. This formation is invariably covered by the sea at high tide, and much of it even at low tide. I have often gone into the breakers, and have nearly been carried away by the strength of the sea, but with a hammer and a bar of iron have broken off, from under the sea, portions of the formation; and then, going on shore, have found spiders, in their homes, in the mass, when I had broken it to pieces. Sometimes I have found five or six spiders, in one piece of material weighing five or six pounds.

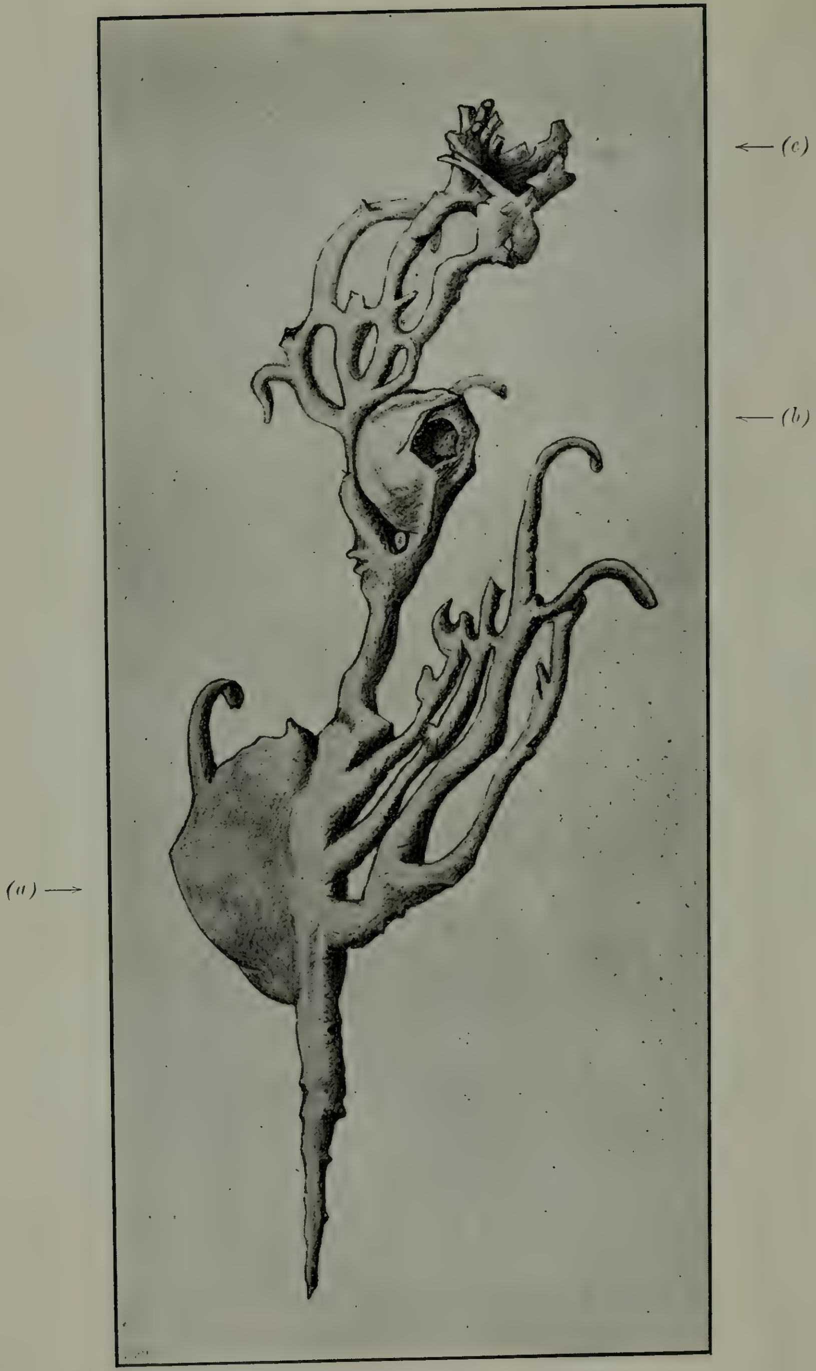
---

[*] In the Ann. Mag. Nat. Hist. (6) xvi, p. 143, 1895, I pointed out that the name *Robsonia*, Cambr., is synonymous with the much earlier *Dandridgea*, White, and that the latter is, in all probability, synonymous with *Desis*, as I here consider it to be.

[†] In the following sentence published by Mr. Cambridge (loc. cit. p. 626), "in the present species [*formidabilis*] the interval between the central pair [of eyes of the posterior row] is nearly, if not quite, double that between each and the lateral eye next to it," the word *double* is an obvious slip for *half*.

"Now, what is curious is, that these spiders cannot swim or dive, and when placed on the surface of the water appear to be quite helpless, or nearly so. I have never seen one make any attempt to navigate itself through water. . . . For a long time I could not get a good specimen of their dwellings; but, with the assistance of a friend, I eventually succeeded in securing several nearly perfect examples. I then saw that the spider did not, as a rule, make its home in the empty tubes of the worms, but that it spun it in one of the many spaces left between the tubes. There is nothing very striking about their silken structures. As you break up a mass of tubes, you suddenly come across a fine and delicate piece of silk. On examining this you find it to be a chamber with an opening sea-ward. It is so frail and delicate that it is very difficult to get a complete specimen, and the least rough handling and it is gone. Yet in this frail house of silk, hidden away in some little space in the mass of tubes built by marine worms, this spider lives and thrives, and propagates its species, the waves breaking over it all day long. It cannot swim, as I have said; it is soft and delicate, and, as I have proved, does not long survive being kept in a dry box away from the sea. I have never, but on one occasion, found one of these spiders apart from the *Tubicola*-masses. I have watched the tubes, when the tide was low, in the hope of seeing a spider crawling or running about, but I have never yet seen one. They live out of sight deep down among the worm tubes. How they catch their food, what their food is, and how they keep the sea from drowning them, are questions I have not yet demonstrated, though I have tried, again and again, to keep them in my marine aquaria. Shortly after introducing one, I have often found it floating helplessly on the water, apparently half dead, and I have had it lifted out of the water and placed on the rock-work, when it soon became active, and ran about very quickly, when it appeared to be just like an ordinary spider. I have not had time yet to make an anatomical study of it, but I thought I had better not defer sending you a specimen, so that you may be, perhaps, the first to receive specimens of the wonderful little spider."

ISH M
NATURAL HI



A. M. H. *delt.*

Crab-Galls on Millepora.

Crab-Gall on Millepora.

By Sydney J. Hickson, M.A., F.R.S.,*

Beyer Professor of Zoology, Owens College, Manchester.

The occurrence of gall-like growths on certain genera of branched Zoantharian corals, belonging to the genera *Sideropora*, *Seriatopora*, and *Pocillopora*, has been known to zoologists for many years. The best description of them may be found in Semper's interesting book, "The Natural Conditions of Existence as they affect Animal Life."†

The Crab that causes the growth of the gall is called *Hapalocarcinus marsupialis*. These galls are by no means rare. In nearly every Museum which possesses several specimens of these genera, examples of such galls are sure to be found; and in *Seriatopora* itself as many as nine or ten galls in different stages of formation are frequently seen in specimens less than a foot in diameter.

The occurrence of Crab-galls on *Millepora*, however, has not, I believe, been hitherto recorded. It must, however, be of extremely rare occurrence, as it has never before come to my notice. During the past ten years I have examined the whole stock of Millepores in several Museums, and have received for examination from naturalists in various parts of the world the specimens of this genus that they have collected. I have noted the various parasites and commensals that are found on them, and the many variations and distortions of growth that they exhibit, and, therefore, have good reason for saying that the occurrence is a rare one.

On the specimen in the Derby Museum, Liverpool (Fig., page 80), there are three galls, two complete and one in process of formation.

Of the three galls the lowermost *(a)* in the figure is the oldest. It is about 30 mm. long by 25 mm. broad, and the aperture is oval, 8 mm. by 6 mm. in size.

The cavity is large, its diameter being considerably greater than the greatest diameter of the aperture. The dried crab remains in this gall, but as it would be impossible to extract it without injury, I am unable to say more about it than that it is very much smaller than the cavity in which it lives.

The second gall *(b)* is smaller and much more spherical in shape, its diameters being approximately 20 mm. The aperture is relatively larger than that of the other, being 6 mm. by 7 mm. in size. It contains no crab.

The imperfect gall at the top *(c)* is widely open, and is formed of a network of Millepore branches imperfectly woven together.

The extent of the malformation produced by these crabs need not be described as it is adequately represented in the illustration, but, I may add, the surface of the coral forming the outer wall of the gall shows no signs of unhealthiness or weakness. The cycles of pores are as numerous and as regular as in other parts of the corallum with normal growth, and the pores themselves are just as large and as well defined there as elsewhere.

These galls cannot, therefore, be regarded as a disease, although they effect a considerable alteration in the normal growth of the corallum.

Note.—The description of the gall-forming crab, given by Dr. Semper, and referred to above, is as follows:—"So long ago as the year 1837 Stimpson described a small crab, under the name of *Hapalocarcinus marsupialis*, which had been discovered in the Pacific Ocean by Dana, in the course of his great voyage under the command of Wilkes. Irrespective of other peculiarities this was distinguished from all other crabs by a remarkable pouch, in which the female carries the young, formed by a prolongation of the lateral plates of the abdomen."

---

* The Director has to thank Prof. Hickson for contributing the above note on this specimen (31, xii., 96, 7 in the Derby Museum), belonging to a group of animals on which he has long been recognised as an authority.

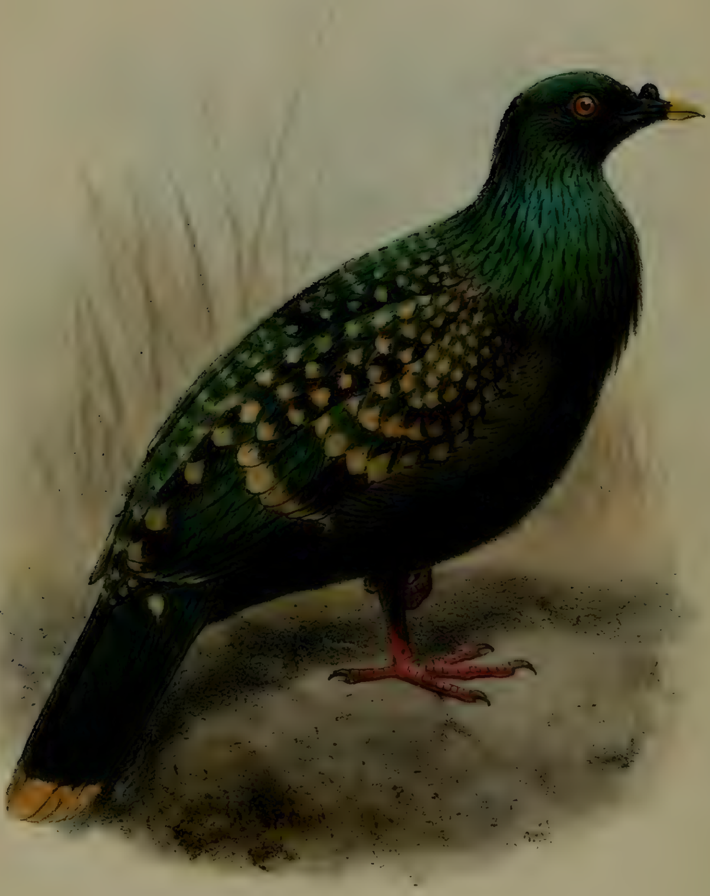
† Kegan Paul, *International Scientific Series*, 1881.

The singular mode of life of these crabs, which was first observed by Semper, who studied them alive in the Philippine Islands, is thus described by him. For gall-forming crabs "an association," he says, "with living corals is indispensable, and the influence of the Corals on the Crabs is as direct and important as that of the Crabs on the Corals. *Hapalocarcinus* has hitherto been detected only in pieces of branching corals of different genera. . . . . . . On all these corals the crabs produce a peculiar excrescence on the twigs (so to speak) of a branch; these growths . . . . grow opposite each other in such a way that the crab settled between them is perfectly surrounded, and thus enclosed, in the gall which gradually forms. . . . . A diseased* excrescence is first produced by the young crab establishing itself between the two branches, and the twig thus originating takes various forms according to the character of the species of coral. . . . . In the first instance the two leaf-like twigs are, of course, far apart, so that the crab could easily get in and out; but as it does not do this, it is soon so surrounded by the growing together of the twigs that it must remain a prisoner. The creature requires a constant and rapid renewal of the water in the gall in which it lives for respiration. . . . . . Since in all the crabs of this group the current of water for breathing enters the body close to the mouth, and passes out again at the hinder margin of the branchial [respiratory] cavity, the stream passing through the gall must always flow in one and the same direction. . . . . . The two excrescences on the coral grow together quickest in those spots which are least exposed to the current through the gall . . . . at length only two fissures . . . are left, which plainly show . . . that it is through them that the current for respiration passes. . . . These two slits remain open so long as the crab is alive; no living crab is ever found in a closed gall, and they are for the most part perfectly empty."

---

* The excrescences show, as stated above, no signs of disease.

BRITISH MUSEUM NATURAL HISTORY



½

J. Smit. del et lith. Mintern Bros. imp.

Calœnas maculata, Lath.

On the Type of the *Spotted Green Pigeon,* of Latham, in the Derby Museum.

(PLATE I. *Columbæ.*)

AMONG the species of Pigeon in this Museum, which must be relegated to *Calœnas,* is a specimen bequeathed to the City by the XIIIth Earl of Derby, which had been acquired by him at the dispersal of General Davies' collection.

This specimen is the Type of the *Spotted Green Pigeon,* of Latham (Gen. Syn. ii., pt. ii., p. 642; 1783). It agrees well with the description, and also with the figure in the same author's Gen. Hist., viii., p. 23, pl. 117 (1822), where, in Lord Derby's copy of that work, it is noted in the Earl's handwriting that the specimen in his collection was formerly General Davies'.

In the British Museum "Catalogue of Birds," Vol. xxi., Count Salvadori has placed this species in an Appendix (p. 649) amongst the uncertain or unidentified species.

The bird is undoubtedly a *Calœnas ;* and is certainly not an individual in the plumage of youth, as Wagler suggested, for it has the frontal knob apparently fully developed.

On examining the large series of *Calœnas nicobarica* in the British Museum, no specimen, young or old, could be found in any way resembling our bird. *Calœnas pelewensis,* also, shows no characters which suggest that Latham's type could belong to that species. From the fact that there were two specimens in existence—for Latham notes that he examined a second in Sir Joseph Banks' collection—we are inclined to the belief that the *Columba maculata* of Gmelin (Syst. Nat. i., p. 780, n. 52, 1788), should be recognised as a good species—*Calœnas maculata.* There is no locality on record for our specimen, but it is not improbable that it came from one of the Pacific Islands whence General Davies received many of his birds.

Note on *Turdinulus epilepidotus* (Temm.).

IN his valuable paper on the genus *Turdinulus,* in "The Ibis," 1896, p. 56, Mr. Ogilvie Grant states that, "In 'The Ibis,' 1865, p. 47, Blyth described *Myiothera murina,* a species said by the author to be founded on a specimen in the Leyden Museum, bearing the above MS. name of S. Müller. It has already been shown by Dr. Sharpe (Notes Leyd. Mus. 1884, p. 174) that the only *Myiothera murina,* S. Müll., in the Leyden Museum, is no *Turdinulus,* but the *Crateroscelis murina* of his volume (Cat. B. vii., p. 590); and it is quite evident that Blyth's notes must have been written from memory—hence his mistake."

Blyth, however, did not make the mistake here ascribed to him. On consulting his paper in "The Ibis," for 1865, one reads :—"The Derby Museum of Liverpool is rich in Philippine birds (collected by Mr. Cuming), and also in the avi-fauna of the Indonesian Archipelago. I went carefully through its collections in every class, and took many notes of the birds of S.E. Asia and its islands, which I transmitted to my friend, Dr. Jerdon. A few, apparently undescribed, species *may be here noticed,** and a further selection of my memoranda, *taken chiefly there,** and some in the Museum of the Royal Institution of that borough." [This latter collection is now dispersed; part having gone to America, part to the Nottingham Museum, and part to the Borough Museum of Bootle.] Then follows the description of those new species, and among them that of "*M. murina*, S. Müller, *n.s.*" The specimen which Blyth there described is still in the collection here, and has on its label in, what there can be no doubt is, Müller's own handwriting:—"*Myiothera murina, nova species, Müll., Java*"; while on the stand—the specimen being mounted—there is inscribed in Blyth's hand, *Turdinus murina.* The Type in question was acquired by Lord Derby from the Leyden Museum, or from Temminck, in 1846, through the well-known dealer, Leadbeater, along with many other specimens of Müller's. The reverse of Müller's original label bears the words:—"*Temminck, Per Leadbeater, Decr.* 1846. *Length* 4¼ *in. Extent* 6 *in.*"

---

* The italics are the writer's.—H. O. F.

Blyth in his paper (in the 1865 "Ibis") errs, however, in giving the locality "Sumatra" instead of "Java" as the label indicates. The habitat recorded by Temminck (Plan. Col. ii., plate 107 [No. 448] fig. 2; 1827) for *Myiothera epilepidota* is Java and Sumatra. Dr. Sharpe, however, by a slip of the pen (Cat. B. vii., p. 540) in quoting from Salvadori (Ucc. Born., p. 224, 1874) has written "Borneo," instead of "Sumatra."

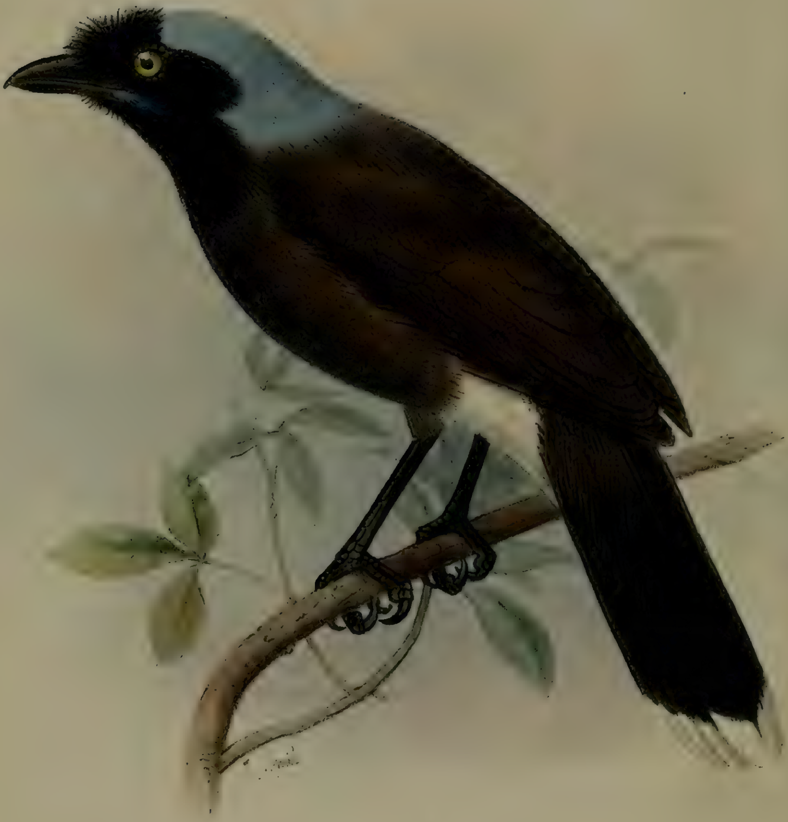
Much of the confusion in connection with this species has arisen chiefly from Blyth's having applied the MS. name of *Myiothera murina* to two totally distinct species: first, to that now recognised as *Turdinulus epilepidota* (Temm.), and, next, to *Crateroscelis murina* (Sclater), from New Guinea, the only bird in the Leyden Museum which Dr. Sharpe could find bearing the name *Myiothera murina* in Müller's handwriting; and also from its having been assumed that Blyth took his name "ex. Müll. MS. *in Mus. Lugd*," (Sharpe, Cat. B. vii., p. 593), instead of *in Mus. Derb. apud Liverpool.*

The Derby Museum now possesses a specimen *(ex Mus. Tristr.)* of *Turdinulus exul*, one of Everett's collecting from 4,800 feet on Mt. Poeh in Borneo, which agrees with the Type collected by Whitehead on Kina Balu, described by Sharpe ("Ibis," 1888, p. 479), and recognised by Grant in the revision of the genus ("Ibis," *tom. et loc. supra cit.*). The latter author distinguishes *T. epilepidotus* from *T. exul*, by its having "the underparts reddish-brown with *wide white* shaft-stripes," and in the "clearly defined" superciliary stripes "white or whitish-buff." In comparing our Type of Blyth's *Myiothera murina* with *T. exul*, Sharpe, it seems impossible to separate them from each other by Mr. Grant's key. Our *T. exul* has, if not wider, at least as wide shaft-stripes as Blyth's *M. murinus*: while its superciliary stripes are as wide and clearly defined; they are, however, more buff. *T. exul* is in general appearance distinctly more rufescent than *M. murinus*; but it must be recollected that the latter has been mounted and exposed to the light in a gallery for over half a century.

On again (July, 1898) carefully comparing (with the kind aid of Dr. Sharpe) our example of *T. exul* with specimens in the British Museum, it was found that it agreed with the Type and other specimens from Borneo; but differed from a Javan specimen, collected by Vordermann on "Mount Jedeh" (*lege* Gedeh, in West Java), in the characters indicated by Grant, who says, in his Paper already quoted, that Vordermann's bird "exactly agrees with Dr. Sharpe's description of the Type [Temminck's] in the Leyden Museum."

A longer series than now exists in any of our Museums from Java, Borneo, and Sumatra, may not improbably show that only one and the same species is common to all three islands.

BRITISH MUSEUM NATURAL HISTORY



J. Smit del. et lith. Mintern Bros. imp.

Cyanocorax heilprini, Gentry.

Note on a Rare Species of Cyanocorax—*C. heilprini.*

(PLATE I. *Corvidæ.*)

AMONG the species of *Cyanocorax* in this Museum from the XIIIth Lord Derby's Collection, there is one from the Rio Negro, purchased from Warwick in 1848. As it differs very distinctly from all the species enumerated by Dr. Sharpe in the "Catalogue of Birds in the British Museum," Vol. iii. (1877), its identification was for a time a matter of some doubt. On searching the literature of the group, however, we found that a species had been described by Gentry (Proc. Phil. Acad., 1885, p. 90) under the name of *Cyanocorax heilprini.*

Gentry's specimen was also from the Rio Negro, and forms one of the well-known Wilson Collection in the Philadelphia Academy, and his description fits our specimen very well. The following are the characters of our example:—

General colour above, from nape to rump, viewed with the eye between the light and the bird, purplish-blue; but with the bird between the light and the eye, light brown; front of head from a line directly behind the eye, the sides of the head and neck, black; a dark purplish-blue line margins the black region, extending from eye to eye over the occiput; frontal plumes bristly and recurved; spot of purplish-blue at base of lower mandible; crown, occiput, and hind-neck lilac, washed on its hinder part with deeper blue; breast and abdomen deep purplish-blue when viewed with the eye between the light and the bird, and greyish-brown when the bird is between the light and the eye; under tail-coverts and vent white; tail concolorous with the back above; underside brown and broadly tipped with white; thighs of the same colour as the rump, instead of "ashy" as in the Type; bill and legs black. Length, 14 inches; wing, 6·75; tail, 7; tarsus, 1·75.

Mr. Whitmer Stone, in cataloguing the species of *Corvidæ* in the Philadelphia Academy (Proc. Phil. Acad., 1891, p. 443) suggests that the species, which at that time was only known from the Type, might possibly be a natural hybrid between *C. cyanomelas* and *C. cyanopogon* or *C. cayanus.*

The specimen in the Liverpool Museum is apparently the only one known besides the Type; but as it is unlikely that there should be two hybrids exhibiting exactly the same characters, we are of opinion that *C. heilprini* must be considered a good species.

Notes on some Marine Invertebrates from Hilbre Island.

THE various very low tides of the year, when the ebb reaches as much as 25 feet or more, are usually taken advantage of to secure additions to our local marine collections. During those at the end of March last, various specimens were obtained from Hilbre Island, at the mouth of the Dee, by Mr. Clubb and Mr. Laverock, Assistants in the Museum.

In addition to a number of the commoner species, several rare and very interesting forms were found. Hilbre is justly celebrated for the richness of its Nudibranch Fauna, and, on this occasion, nine species of this interesting group were obtained, among them being two which have only been found there at long intervals, viz., *Archidoris tuberculata* and *Tritonia hombergi*—the latter not having been recorded from this locality since 1886. Some of the commoner species were transferred alive to the Museum Aquarium, where they lived for some time and deposited spawn, which, as is unfortunately usually the case, did not further develop. Several masses of the ribands of spawn of *A. tuberculata* were specially noticeable. One of these was carefully detached complete and brought to the Laboratory for the purpose of mounting alongside the Nudibranch as a Museum preparation. The ova are deposited by this species, as is well known, in a broad, concentrically coiled, gelatinous riband, one edge attached, the other free and slightly wavy. The length of the riband in this mass was found to be 29 inches on the outer, and 21 inches on the inner or attached margin, while the breadth varied from $\frac{13}{16}$-in. to $\frac{17}{16}$-in. According to Alder and Hancock (*Monograph of the Nudibranchiate Mollusca*), a riband 9 inches in length contains about 50,000 ova, so that the number in our specimen must be enormously great.

Another interesting species found in abundance was the Amphipod *Corophium grossipes*. Attention was first attracted to it by the peculiar appearance of many of the mud banks, due to a vast number of small excrescences projecting above the surface. A closer examination revealed each excrescence to be the elevated entrance to a minute burrow from one to one and a half inches deep, in which one of these small Amphipods was usually found. On some of the mud containing them being placed in a tank in the Aquarium, the animals were soon seen busily engaged making new burrows. In this operation they bring all their appendages into use, pushing their long antennæ first into the mud, and throwing it sideways with their feet. One burrow, which happened to be made against the glass, was observed throughout its entire construction, and the animal was on several occasions seen pushing its way along. The burrow was of a U-shape with two openings, and only extended down about one inch. This is confirmatory of other observers, who state that *Corophium grossipes* does not burrow very deeply, and is only found in the soft surface mud.

A particularly fine colony of the somewhat rare Zoophyte, *Garveia nutans*, attached to a piece of sandstone, and specimens of both the white and deep-orange varieties of *Alcyonium digitatum*, fixed in Formal in an expanded condition, may be specially mentioned among other interesting forms obtained for the British Collection and the Aquarium.

Catalogue of the Picarian Birds (Pici): Puff Birds (Bucconidæ), Jacamars (Galbulidæ), Barbets (Capitonidæ), Toucans (Rhamphastidæ), Honey Guides (Indicatoridæ), and Woodpeckers (Picidæ) in the Derby Museum.

By Henry O. Forbes and Herbert C. Robinson.

Note.—*The arrangement and nomenclature followed in this Catalogue are nearly those adopted in the 'Catalogue of Birds in the British Museum,' Vols. XVIII. and XIX., by E. Hargitt, G. E. Shelley, and P. L. Sclater. All the species, known to us up to July, 1898, are enumerated, the original (or translated) diagnoses of those described since the publication of those volumes being inserted. The names of the species desiderata to our collection are printed in Grotesque type, thus*—pastazæ.

For the explanation of the abbreviations used below, see Note on p. 37.

BUCCONIDÆ.

BUCCO, *Briss.*

collaris, *Lath.* Two.

macrorhynchus, *Gm.* Two.

dysoni, *Sclat.* Five. Central America (Honduras, Celeman, June). Ecuador.

hyperrhynchus (*Bp.*).

swainsoni, *G.R.Gr. & Mitch.* One. South Brazil (Rio Janeiro).

pectoralis, *G.R.Gr. & Mitch.*; ordi, *Cass.*

tectus, *Bodd.* Five.

picatus, *Sclat.*; subtectus, *Sclat.*

macrodactylus (*Spix*). One. Eastern Peru.

ruficollis (*Wagl.*). One.

bicinctus (*Gould*). Four. South America. [Mexico].

tamatia, *Gm.* Four. Surinam. Peru.

We have included *B. pulmentum*, Bp. in this species, as specimens from Surinam and Peru appear to us not separable.

maculatus (*Gm.*). Nine. Brazil (Para).

T **striatipectus,** *Sclat.* Two. Bolivia.

Types of the species P.Z.S. 1853, p. 123.

chacuru, *Vieill.* Six. Brazil. Bolivia.

striolatus, *Pelz.*; radiatus, *Sclat.*

fulvidus, *Godm. & Salv. Biol. Centr. Amer. Aves*, Vol. ii. pp. 514-515 (1896).

"Above chestnut, barred across with black, hinder part of pileum and interscapular region mostly black, cervical collar fulvous; lores whitish, sides of the head and upper abdomen fulvous barred across with black, throat whitish, lower abdomen and under tail-coverts uniform fulvous; wings chestnut, barred across with black, the tips of the primaries blackish; tail chestnut, regularly barred with black; bill lead-colour, under surface of the mandible pale; feet coral red. Total length, 8·5 inches; wing, 3·65; tail, 3·3; bill from gape, 1·65; tarsus, ·75." (*Godman & Salvin*). *Habitat.* Panama. Columbia. Ecuador.

MALACOPTILA, *G.R.Gr.*

T fusca (*Gm.*). Five. Cayenne. Amazons.

Nos. 3, and 4 (= 2148 and 2148*a* Lord Derby's Mus.) are *fide* Sclater the Types of *White Breasted Barbet*, Lath. Gen. Syn. i. p. 505 (1782); id. Gen. Hist. iii. p. 219 (1822), and consequently Types of the species.

rufa (*Spix*). Two.

torquata (*Hahn.*). Seven. Brazil.

panamensis, *Lafr.* Two. Central America (Coban). New Grenada.

inornata (*Du Bus*). One. ♀. Central America (Vera Paz, Choctum).

T fulvigularis, *Sclat.* One. Bolivia.

Type of the species described P.Z.S. 1853, p. 123.

substriata, *Sclat.*

fuliginosa, *Richm. Pro. U.S. Nat. Mus.* xvi. pp. 512-513 (1893); *Godm. & Salv. Biol. Centr. Amer. Aves*, Vol. ii. p. 517 (1896).

"Above deep clove-brown, rather clearer, or more inclining to brownish slate, on head and neck; back and tips of wing-coverts sparsely marked with minute dots of dull buffy; sides of head, beneath and behind the eyes, narrowly streaked with buff; median portion of forehead, lores (except near eyes), and malar plumes white; chin and upper throat mixed white and dusky brown, the latter nearly uniform on upper throat; centre of throat white, becoming light dull buff on lower throat and chest; rest of lower parts buffy-white; the breast and sides conspicuously striped with dusky brown, these stripes broadest and most sharply defined on sides of breast; under wing-coverts and broad edges to inner webs of remiges buff. Upper mandible black; lower, pale yellowish brown, tipped with black; feet horn colour; iris carmine. This colour from life, the others from dried skin. Wing, 3·30 inches; tail, 2·95; lateral feather, 0·80 shorter; exposed culmen, 0·95; tarsus, 0·65. *Habitat*. Escondido R., Nicaragua." (*Richmond*).

MICROMONACHA, *Sclat.*

lanceolata (*Deville*).

NONNULA, *Sclat.*

rubecula (*Spix*). Two. Banks of the Amazons.

cineracea, *Sclat.*

ruficapilla (*Tschudi*). One. ♀. Peruvian Amazons.

frontalis (*Sclat.*); brunnea, *Sclat.*

HAPALOPTILA, *Sclat.*

castanea (*Verr.*).

MONACHA, *Vieill.*

nigra (*Müll.*). Three. Cayenne.

flavirostris, *Strickl.* One.

morpheus (*Hahn.*). Three. Demerara.

peruana, *Sclat.*; grandior, *Sclat. & Salv.*; pallescens, *Cass.*

nigrifrons (*Spix*). Three.

CHELIDOPTERA, *Gould.*

tenebrosa (*Pall.*). Five.

brasiliensis, *Sclat.* Two.

GALBULIDÆ.

GALBULINÆ.

UROGALBA, *Bp.*

paradisea (*Linn.*). Two. Demerara.

No. 1 is apparently not quite an adult bird; the forehead, chin, and upper throat, paler than in specimens of *U. amazonum.* Bill from anterior margin of nostril, 1·9—1·7 inch.

paradisea, *subsp.* **amazonum,** *Sclat.* Six. Upper Amazons. [Rio Janeiro.]

Four specimens are without locality, but they seem to belong to this sub-species, which is very difficult to separate from true *U. paradisea.* Bill from anterior margin of nostril, 1·85—2·20.

GALBULA, *Briss.*

galbula (*Linn.*). Four. 3 ♂, ♀. South America (Cayenne).

rufo-viridis, *Cab.* Three. 3 ♂. Brazil. Bolivia.

ruficauda, *Cuv.* Six. 2 ♂, 4 ♀. U.S. Colombia (Cumana). Ecuador (Guayaquil).

G. ruficauda does not seem to have been previously recorded from Ecuador, where No. 6, a male, was (according to the label) collected by De Lattre within what is supposed to be the range of *G. melanogenia.*

melanogenia, *Sclat.* Four. 2 ♂, 2 ♀. Central America (Vera Paz, Choctum; Honduras, Omoa).

tombacea, *Spix.* Two. Sarayacu.

pastazæ, *Tacz. & Berleps.*

albirostris, *Lath.* Eleven. 8 ♂, 3 ♀. Demerara. Peru. [Brazil (Rio Janeiro).]

cyaneicollis, *Cass.* One. Brazil (Para).

leucogastra, *Vieill.* Four. 2 ♂, 2 ♀ [Guatemala]. Brazil (Barra de Rio Negro).

chalcothorax, *Sclat.*

BRACHYGALBA, *Bp.*

lugubris (*Swains.*); fulviventris, *Sclat.*; goeringi, *Sclat. & Salv.*; salmoni, *Sclat. & Salv.*; albigularis (*Spix*); melanosterna, *Sclat.*

JACAMARALCYON, *Less.*

tridactyla (*Vieill.*). Two. [Interior of Cayenne].

GALBALCYRHYNCHUS, *Des Murs.*

leucotis, *Des Murs.*

JACAMEROPINÆ.

JACAMEROPS, *Less.*

grandis (*Gm.*). Eight. 3 ♂, 5 ♀. Bogota. Brazil.

CAPITONIDÆ.

POGONORHYNCHUS, *Van der Hoeven.*

dubius (*Gm.*). Seven. ♂, ♀. West Africa (British Combo, Bakow, January; M'Carthy's Island; Gambia; Senegal).

Nos. 5 and 6, male and female, from Senegal, differ from the others in the almost entire absence of the sulcations on the lower mandible. The bristles on the chin and gape are much weaker than in the other specimens, and the red cross band on the wing-coverts is absent, as are also the red tips to the feathers of the loral region. They are probably young birds.

ERYTHROBUCCO, *Shelley.*

rolleti (*Defilippi*). One. ♂. Central Africa (Fadibek, Lado, January).

MELANOBUCCO, *Shelley.*

bidentatus (*Shaw*). (= *Pogonorhynchus dubius* (Gm.), Tristr. Cat. Coll. Birds, p. 86). Four. West Africa (Lagos; Fantee).

æquatorialis, *Shelley.* One. Abyssinia.

melanopterus (*Peters*). Three. East Africa (Ribé; Usambara Hills, Pangani R.; Dar-es-salaam).

levaillanti (*Vieill.*); leucocephalus (*Defilippi*); albicauda (*Shelley*); senex (*Rchnw.*); leucogaster (*Boc.*).

T abyssinicus (*Lath.*). Five. ♂, ♀. [Egypt]. Abyssinia.

No. 3 (= 12755 Tristr. Mus.) is figured in Marshall, Mon. Capit. p. 17, pl. 9 (1870); but the figure is not a very accurate representation, for the specimen not being fully adult has only a narrow frontal band of scarlet, and the rest of the head black, with traces of scarlet showing through, and not entirely black as in the figure. Nos. 4, and 5, male and female (= 1463, 1463*a*, Lord Derby's Mus.), obtained in Abyssinia by Salt in 1812, are the types of *Bucco saltii*, Stanley, Salt's Voy. Abyss. App. iv. p. liv. (1814). In these two specimens the scarlet on the breast only extends as far as the angle of the wing.

rubrifacies (*Rchnw.*). *Ber. Allg. Deutsch. Orn. Ges.*, Jan. 1892, p. 1; *id. J.f.O.* 1892, pp. 3, 25, 215.

"Iron black; forehead, ophthalmic region, parotid and cheeks red; primaries dark, externally margined with whitish yellow, internally with white; under wing-coverts white; iris red; beak blackish; feet black. Total length (male), 205 mm.; wing, 91; tail, 64; beak, 21; tarsus, 21. Closely allied to *M. abyssinicus*, but distinguishable by its black throat." (*Reichenow*). *Habitat* Kimoani, East Central Africa.

torquatus (*Dumont*). Ten. 3 ♂. South Africa (Rustenberg, Transvaal, January and June; Natal).

zombæ, *Shelley, Ibis*, 1893, pp. 10-11; *id. op. cit.*, 1896, p. 178. One. Central Africa (Nyassaland, Zomba, November).

"Similar to *M. torquatus*, but spotted with whitish, not scarlet, on the forehead, sides of the face and throat. Total length, 5·5 inches; wing, 3·5." (*Shelley*).

In our specimen, which is apparently immature, the feathers of the forehead, cheeks, and throat are black on their basal portions, as in *M. torquatus*, but their tips are pinkish red instead of scarlet; two feathers are of a deeper shade.

irroratus (*Cab.*). Four. East Africa (Kikombo, September; Ribé; Usambara Hills, Pangani R.).

The specimen from the last-mentioned locality was collected by Sir J. Kirk.

vieilloti (*Leach*). Five. ♂. West Africa (Gambia, Bathurst, August). Kordofan, July. Central Africa (White Nile).

undatus (*Rüpp.*). One. Abyssinia.

This specimen, purchased from E. Verreaux in 1850, is labelled *Pogonias brucii*, Rüpp. juv. (*cf.* Marshall, Mon. Capit. p. 18, 1871). It agrees fairly well with Marshall's figure (*op. cit.* p. 27, pl. 13), taken, as he states, from a bird—the only one he had seen—in the British Museum, which he considered to be immature; yet Shelley (Cat. Birds Brit. Mus. xix. p. 27, 1891) makes no mention whatever of the immature plumage.

TRICHOLÆMA, *J. & E. Verr.*

hirsutum (*Swains.*). Six. West Africa (Gold Coast, October; Fantee).

Two specimens differ from the rest in having the edges of the wing feathers and the markings on the back bright ochre yellow, instead of pale glaucous green; the hind part of the head is also streaked with the same colour. Marshall considers this to be a sign of immaturity; these specimens, however, have every appearance of being fully adult, and it is possible, as Shelley suggests, that the yellow marked birds may be the females.

stictilæma, *Rchnw. Ornith. Monatsber.* iv. pp. 77-78 (1896).

"General colouration the same as that of *T. hirsutum*, but the throat streaked with black on a white-grey ground. The colouration of the throat is the same as that of *T. flavipunctatum*, Verr." (*Reichenow*). *Habitat.* Kinjawanga, Central Africa.

There is no character in the above description by which, as it seems to us, this species can be distinguished from young specimens of *T. hirsutum*, with which, indeed, Dr. Reichenow states he had formerly placed it.

ansorgii, *Shelley, Bull. B.O.C.* xxix. p. iii. (1895); *id. Ibis*, 1896, p. 133.

"Similar to *T. hirsutum*, but to be distinguished by the flanks being more broadly spotted with black, very slightly (*minime*) barred with white. Total length, 6·3 inches; wing, 3·5." (*Shelley*). *Habitat.* Uganda.

N.B.—There are no white bands on the flanks of *T. hirsutum.*

gabonense, *Shelley, Bull. B.O.C.* xxix. p. iii. (1895); *id. Ibis*, 1896, p. 133.

"Similar to *T. hirsutum*, but to be distinguished by its browner colour, and by the absence of white markings on the sides of the face. Total length, 7·3 inches; culmen, 0·95; wing, 3·6; tail, 2·1; tarsus, 0·9." (*Shelley*). *Habitat.* Gaboon. Cameroons.

Reichenow apparently recognises as distinct (J.f.O., 1896, p. 53) *T. flavipunctata*, Verr., which Shelley has included in the synonymy of *T. hirsutum.* He also suggests (Ornith. Monatsber iv. p. 76) that *T. gabonense*, Shelley, may prove to be a synonym of *T. flavipunctata*, Verr.

stigmatothorax (*Cab.*).

blandi, *Lort-Phillips, Bull. B.O.C.* xlv. p. xlvii. (1897); *id. Ibis*, 1898, p. 415, pl. ix. fig. 1.

"Like *T. stigmatothorax*, but easily distinguished by the absence of a red pectoral spot, and by the pileum and feathers of the throat being markedly tipped with white. Total length, 4·6 inches; wing, 2·5; tail, 1·3; culmen, 0·6; tarsus, 0·8. *Habitat.* Goolis Mountains, Somaliland." (*Lort-Phillips*).

melanocephalum (*Cretzsch.*). One. Abyssinia (Bogos-Land).

lachrymosum (*Cab.*). One. ♀. Central Africa (Kikombo).

affine (*Shelley*).

flavibuccale, *Rchnw. Ornith. Monatsber.* i. p. 30 (1893).

"Like *T. affine* (Shelley), but with the anterior portion of the lower cheeks sulphur yellow, the abdomen without spots, and the black on the throat less extended. . . . Total length, about 130 mm.; wing, 70; tail, 42; bill, 16; tarsus, 19." (*Reichenow*). *Habitat.* Wembaere Steppe, Eastern Africa.

leucomelan (*Bodd.*). Ten. ♂. South Africa (Zambesi; Great Namaqualand).

diadematum (*Heugl.*). One. ♀. Central Africa (Lado, July).

frontatum (*Cab.*); masaicum (*Rchnw.*).

GYMNOBUCCO, *Bp.*

calvus (*Lafr.*). One. ♂. West Africa.

cinereiceps, *Sharpe, Ibis*, 1891, p. 122; *id. op. cit.* 1892, p. 310; *id. tom. cit.* p. 555.

"Brown above and beneath, with paler brown margins to the feathers; wing feathers brown; tail blackish; head entirely dark, slaty grey; throat lighter ashy grey, as well as the sides of the neck; two frontal tufts of dark sandy colour; the forehead streaked with straw yellow. Total length, 7 inches; culmen, 0·85; wing, 4·0; tail, 2·4; tarsus, 0·9." (*Sharpe*). *Habitat.* Mt. Elgon, East Africa (*Jackson*).

HELIOBUCCO, *Shelley.*

bonapartii (*Hartl.*).

SMILORHIS, *Sundev.*

leucotis (*Sundev.*); bocagii, *Souza;* kilimensis, *Shelley.*

whytii, *Shelley, Ibis*, 1893, p. 11, pl. 1; *id. op. cit.* 1894, p. 9.

One. Central Africa (Nyassaland, Zomba, November).

"Head and neck black; feathers of the forehead and crown without elongated shafts, and many of them having very minute white tips; rictal bristles white; a broad white band on the cheeks beneath the bare skin of the sides of the head; a fairly large white chin patch; body above and beneath brown, with partial pale edges to the feathers, and passing into white on the centre of the abdomen, thighs and under tail-coverts; wings dark brown, with a patch of white on the least wing-coverts and with partial white edges to the greater wing-coverts and quills, most conspicuous about half-way down the latter; under wing-coverts and inner margins of the quills white; tail dark brown with an ashy shade; bill and legs black. Total length, 6·7 inches; culmen, 0·7; wing, 3·5; tail, 2·2; tarsus, 0·9."

"Can be distinguished from *S. leucotis* by its brown breast." (*Shelley*).

BARBATULA, *Less.*

duchaillui, *Cass.* Three. West Africa (Axim; Fantee; Denkera).

ugandæ, *Rchnw. Ber. Allg. Deutsch. Orn. Ges.*, Jan. 1892, p. 1; *id. J.f.O.* 1892, pp. 3, 25, 215.

"Like *B. duchaillui*, but with the interscapulars and middle of the back uniform iron black, not spotted with yellow. Total length (male), 185 mm.; wing, 80; tail, 47; bill, 16; tarsus, 21." (*Reichenow*). *Habitat.* Central Africa (Mengo, Uganda).

pusilla (*Dumont*). Four. [Abyssinia (Bogos-land)]. South Africa (Port Natal).

No. 1 (= 18021 Tristr. Mus.) from Bogos-land, collected by Jesse, is undoubtedly this species, and not *B. minuta* as might have been expected. The labels may possibly have been transposed.

minuta, *Bp.*

affinis, *Rchnw.* One. East Africa (Ribé).

uropygialis, *Heugl.*

chrysocoma (*Temm.*). Four. 2 ♂. West Africa (Gambia, Bathurst, August).

extoni, *Layard.* Three. 3 ♂. South Africa (Transvaal, Rustenberg, July and November).

T erythronota (*Cuv.*). One. *Ex* Bullock Mus.

Probably the Type of *Le Barbion à dos rouge*, Levaill. Barbus. p. 132, pl. 57 (1806), and consequently Type of the species.

bilineata (*Sundev.*).

jacksoni, *Sharpe, Bull. B.O.C.* xlvii. p. vii. (1897).

Similar to *B. bilineata*, but distinguished by the throat and sides of the upper chest being slaty grey, the wing-coverts and secondaries margined with pale sulphur yellow, and the flanks ochre brown. Total length, 4·4 inches; wing, 2·4." (*Sharpe*). *Habitat.* Mau., British East Africa.

chrysopyga, *Shelley.*

coryphæa, *Rchnw. Ber. Allg. Deutsch. Orn. Ges.*, Feb. 1892, p. 3; *id. J.f.O.* 1892, pp. 181-2, 218-9, Taf. ii. fig. 2; *id. op. cit.* 1894, p. 33; *id. op. cit.* 1896, p. 53.

"Above black, with a yellow band, mixed with black on the neck and back, running from the vertex, along the middle of the back, to the uropygium; a white band terminating on the sides of the head and neck; the whole belly greyish olive; wings black, with a yellow transverse band, formed by the tips of the median wing-coverts; edges of the primaries and greater wing-coverts also yellow; under wing-coverts and inner margins of the primaries, white; tail and upper tail-coverts, black; iris black; bill blackish; feet lead colour. Total length, 105 mm.; wing, 53; tail, 27; bill, 11; tarsus, 14." (*Reichenow*). *Habitat.* Buea (950 metres above the sea), Cameroons.

leucolæma, *J. & E. Verr.* (= *B. subsulphurea* (Schl.), Tristr. Cat. Coll. Birds, p. 87). Three. West Africa (Brass; Lagos; Fantee).

subsulphurea (*Fras.*); fischeri, *Rchnw.*

T scolopacea (*Temm.*). Three. West Africa (Fernando Po; Fantee).

No. 1 (= 13386 Tristr. Mus.) from Fernando Po, is the Type of *Bucco sp.*, Fraser, P.Z.S. 1843, p. 4 (note).

STACTOLÆMA, *Marshall.*

anchietæ (*Boc.*); olivaceum (*Shelley*); simplex (*Fisch. & Rchnw.*).

woodwardi, *Shelley, Bull. B.O.C.* xxix. p. iii. (1895); *id. Ibis*, 1896, p. 133; *R. B. & J. D. S. Woodward, Ibis*, 1897, p. 494, pl. x.

“Like *S. olivaceum*, Shelley, but slightly larger, and distinguishable by a large sulphur-yellow auricular spot extending on to the nape. Total length, 6·5 inches; wing, 3·5; tail, 2·3; culmen, 0·75; tarsus, 0·95.” (*Shelley*). *Habitat.* Zululand.

sowerbyi, *Sharpe, Bull. B.O.C.* li. p. xxxvi. (1898); *id. Ibis*, 1898, p. 297.

“Like *S. anchietæ*, but with the chin white, the throat and fore-breast blackish, feathers of the belly tipped with white, and the thighs white. Total length, 6·6; wing, 3·75 inches.” (*Sharpe*). *Habitat.* Mashonaland.

leucomystax (*Sharpe*), *Ibis*, 1892, p. 310.

“Like [*B.*] *simplex* (Fisch. & Rchnw.), but distinguishable by its broad white moustachial stripe. Total length, 3·8 inches; wing, 2·1; tail, 1·25; culmen, 0·4; tarsus, 0·6.” (*Sharpe*). *Habitat.* Sotik, East Africa.

CALORHAMPHUS, *Less.*

hayi (*J. E. Gray*). Twelve. Malay Peninsula (Singapore; Malacca).

fuliginosus (*Temm.*). Three. ♂. Borneo (Jambusan, September; Trusan, November).

MEGALÆMA, *G.R.Gr.*

virens (*Bodd.*).

marshallorum, *Swinh.* Twelve. ♂, 2 ♀. Northern India (Punjaub; Simla, June; Nepaul; Darjeeling; Bengal).

lagrandieri, *Verr.* (= *Cyanops lagrandieri*, Shelley, Cat. Birds Brit. Mus. xix. pp. 75-76 (1891).

THEREICERYX, *Blanford.*

“Bill shaped somewhat as in *Megalæma*, but the upper mandible is not quite so high, and the bill is generally pale yellowish throughout. Nostrils exposed. Wing rounded. The plumage is peculiar; the head, neck, and breast are brown, more or less streaked with white, the rest of the plumage green.” *Blanford Faun. Brit. Ind. Aves.* iii. p. 86 (1895).

phœostriata (*Bp.*). (= *Cyanops phæostriata*, Shelley, Cat. Birds Brit. Mus. xix. p. 76, 1891).

zeylonica (*Gm.*). Eight. 2 ♂. India (Khandala, April and May; Belgaum, June; Nellore). Ceylon.

Following Dr. Blanford, we have united the forms known as *T. caniceps* (Frankl.) and *T. inornata* (Wald.), with this species.

lineata (*Vieill.*). Eleven. Northern India (Himalayas; Nepaul). Burmah (Rangoon, October). Pegu. Java.

viridis (*Bodd.*). Five. Southern India (Coonoor Ghat, February; Nellore).

CHOTORHEA, *Bp.*

corvina (*Temm.*). Four. 2 ♀. Java (Bantam Residency, Kosala, June and July.

javensis (*Horsf.*). Four. 2 ♂. Java (Bantam Residency, Genteng Lebak, April and August).

chrysopogon (*Temm.*). Six. 3 ♂. Malay Peninsula. Sumatra (Lampong Residency, Kotta Djawa). [Java].

chrysopogon, *subsp.* **chrysopsis** (*Goffin*). Three. Borneo (Segilind R.; Trusan, March).

versicolor (*Raffl.*). Sixteen. ♂, ♀. Malay Peninsula (Malacca; Pahang, January). Borneo (Busan, October).

mystacophanes (*Temm.*). (= *Cyanops mystacophanes*, Shelley, Cat. Birds Brit. Mus. xix. pp. 72-74, 1891). Fourteen. 3 ♂, ♀. Malay Peninsula (Penang). Sumatra (Lampong Residency: Tarratas; Kotta Djawa). Borneo (Baram; Silam).

monticola (*Sharpe*). (= *Cyanops monticola*, Shelley, Cat. Birds Brit. Mus. xix. p. 74, 1891). Three. Borneo (Mt. Dulit, at 4000 feet, May).

CYANOPS, *Bp.*

asiatica (*Lath.*). Twenty. ♀. Northern India (Bengal; Howrah, October; Nynee Tal, September; Nepaul). Assam (Bograh, April).

In all our specimens there is more or less blue mixed with the black of the median frontal band, though in some cases it is only just perceptible. In three specimens, moreover, from Nepaul, collected by Brian Hodgson, the blue on the throat and cheeks is more intense, and the whole of the underparts are suffused with a very decided wash of verditer blue.

rubescens, *Baker, Nov. Zool.* iii. p. 257-258 (1896).

"Nasal feathers black; forehead crimson; a narrow vertical line dull golden yellow, succeeded by another line of black, extending on either side down the sides of the occiput, gradually widening as it reaches the nape; whole nape and hind crown crimson, *changing gradually into the colour of the back;* supercilium, lores, ear-coverts, chin and throat blue as in *C. asiatica;* a small crimson speck at the gape; upper back, scapulars, and inner secondaries, grass-green, broadly margined with dark bright maroon red; remainder of wing coloured like that of *C. asiatica;* lower back and rump brighter grass-green; upper tail-coverts the same, bordered with maroon; tail, upper surface green, lower aspect blue. A large crimson patch below the blue of the throat, not clearly defined but encroaching on the breast; remainder of lower surface bright yellowish grass-green, far more tinged with yellow, and of a much brighter tint, than are the same parts in *C. asiatica;* much smeared and splashed with brilliant scarlet crimson, particularly so on the breast and under tail-coverts. Bill greenish yellow, base of maxilla and basal half of culmen almost black; gonys darker green; irides dark brown; orbital skin dull orange; legs dull dirty green; claws almost black. Length, about 8·5 inches; wing, 3·75-3·85; tail, 2·5; bill from gape, 1·24. *Habitat.* East Cachar Hills, above 3500 ft." (*Baker*).

davisoni (*Hume*).

flavifrons (*Cuv.*). Two. Ceylon.

armillaris (*Temm.*). Ten. 3 ♂, 3 ♀. Java (Bantam Residency, Kosala, June and July).

henrici (*Temm.*). Nine. Malay Peninsula (Penang; Singapore). Sumatra.

pulcherrima (*Sharpe*).

franklini (*Blyth*). Seven. North India (Behar; Sikkim; Darjeeling). Assam.

T ramsayi (*Wald.*). One. ♀. Burmah (Karen Hills, 4000 ft., April).

This is a Co-type of the species, Ann. & Mag. Nat. Hist (4) xv. p. 400 (1875).

oorti (*S. Müller*). One. Sumatra.

nuchalis (*Gould*). Two. North Formosa.

T faber (*Swinh.*). One. Hainan, February.

A Co-type of the species, Ibis, 1870, p. 96, pl. iv.

eximius (*Sharpe*). *Ibis*, 1892, p. 324, pl. xi.; *id. tom. cit.* p. 441; *Hose, op. cit.* 1893, p. 414; *Sharpe, tom. cit.* pp. 547-552.

One. ♂. Borneo (Mt. Kalulong, February).

"Adult male. General colour above grass-green; wings and tail like the back, with a bluish shade round the edge of the wing and on the primary coverts; quills blackish, externally green; tail green, with a bluish shade along the inner web; a broad frontal band of black slightly washed with blue, this band followed by a broad band of crimson across the centre of the crown; lores, feathers above and below the eye, as well as the ear-coverts, verditer blue; above the gape a golden yellow spot; fore part of cheeks black, followed by a spot of crimson; hinder cheeks yellowish green, like the sides of the neck; throat black, with a mark of verditer blue on each side of the lower throat; on the fore neck a large spot of crimson; rest of under surface yellowish green, lighter on the abdomen; under wing coverts and quill lining ochreous-buff, the edge of the wing showing greenish blue. Total length 6·2 inches, culmen 0·6, wing 3·15, tail 2·0, tarsus 0·7." (*Sharpe*). *Habitat.* Mt. Dulit, N.W. Borneo.

Our specimen, collected by Mr. C. Hose, agrees very well with the above description. The bill, however, is much shorter and stouter than that of *M. duvauceli* ; the gonys very much shorter and ascending more abruptly. We have consequently placed it under the genus *Cyanops*.

MESOBUCCO, *Shelley*.

duvauceli (*Less.*). Twenty-five. 4 ♂, ♀. Malay Peninsula (Malacca). Sumatra (Padang). Borneo (Banjermassim ; Silam ; Jambusan ; Mt. Kalulong, February).

cyanotis (*Blyth*). One. ♂. Tenasserim (Bankasoon, March).

robustirostris, *Baker, Journ. Bombay N.H. Soc.* x. pp. 356-357, pl. F. (1896).

"Whole plumage green, brightest and tinged with yellow on the forehead : visible portions of the wing rather dull grass-green ; the coverts tinged with yellow on the outer webs ; the secondaries edged pale yellow-cream on the inner webs : tail below dull blue-green. Whole lower plumage rather bright but pale grass-green, the lores, cheeks, ear-coverts, throat, and upper breast, strongly suffused with blue ; the remainder of the lower parts rather less so, the under tail-coverts being quite free from this colour. Irides orange brown ; orbital skin dull blue ; bill horny black, tinged with yellowish horny at the base ; legs pale slate, claws almost black. Length, 5·4 inches ; wing, 3·25 ; tail, 1·70 ; tarsus, ·75 ; bill at front, ·65 ; and from gape, ·98 ; breadth at forehead, 36. *Habitat*. North Cachar." (*Baker*).

XANTHOLÆMA, *Bp.*

hæmatocephala (*P. L. S. Müller*). Sixteen. 2 ♂, ♀. Northern India (Bengal ; Muddapur, October). Southern India. Lower Pegu, May. Sumatra (Lampong Residency ; Palembang Residency, Rawas R., December). Philippine Islands (South Luzon).

rubricapilla (*Vieill.*). Two. Ceylon.

australis (*Horsf.*). Three. ♂. Java (Bantam Residency, November).

malabarica (*Blyth*). Three. 2 ♂, ♀. Southern India (Tillicherry, October ; Bandipur, February).

rosea (*Dumont*). Five. 3 ♂. Java (Bantam Residency, May). Philippine Islands (Negros, March).

We have followed Mr. Ogilvie-Grant in including *X. intermedia*, Shelley, in the synonymy of this species.

PSILOPOGON, *S. Müller*.

T **pyrolophus**, *S. Müller*. Five. ♂. Sumatra (Mt. Sago, October ; Lampongs, Hoedjoeng, January ; Batang Singalang).

No. 3 (Male), collected by S. Müller at Batang Singalang, is probably a Co-type of this species.

TRACHYPHONUS, *Ranzani*.

cafer (*Vieill.*). Nine. South Africa (Zambesi ; Bamangwato Country, Transvaal, Rustenberg, July and August).

suahelicus, *Rchnw.* ; versicolor, *Hartl.* ; erythrocephalus, *Cab.* ; shelleyi, *Hartl.*

T **margaritatus** (*Rüpp.*). Six Central Africa (White Nile). Abyssinia.

No. 2 (= 1462*b*, Lord Derby's Mus.) collected by Rüppell is probably a Co-type of the species.

boehmi, *Fischer & Rchnw.* ; emini, *Rchnw.*

uropygialis, *Salvad. Mem. Acc. Torino*, (2) xliv. pp. 551-552 (1894).

"Very similar to *T. boehmi*, but with the lateral upper tail-coverts scarlet, the median ones yellow at their tips and bases. Pileum slightly crested, black, some of the hinder feathers yellow at the tips ; sides of the head and neck, and throat bright sulphur-yellow, very minutely spotted with black ; some of the superciliary-cheek-and-chin-feathers yellowish red : hind-neck fuscous with the feathers sulphur-yellow at the tip, and very narrowly margined with black ;

interscapulars, wing-coverts, scapulars and primaries, fuscous dotted with white spots, more or less round; back and uropygium pale yellow; upper tail-coverts yellow, the lateral ones scarlet; tail feathers fuscous, spotted on either web with yellowish white; throat spot iron black; chest and upper belly yellow, dotted with very small scattered black spots; a broken pectoral-band composed of black feathers with rounded white spots at their tips; abdomen pale yellowish white under tail-coverts scarlet; bill pale horn-colour, feet blackish. Total length, 170 mm., wing 70, tail about 60, culmen 17, tarsus 22." (*Salvadori*). *Habitat.* Somaliland.

arnaudi (*Des Murs*). One. ♀. Central Africa (Bon, Lado, July).

TRACHYLÆMUS, *Rchnw.*

purpuratus (*J. & E. Verr.*). One. West Africa (Gaboon).

elgonensis (*Sharpe*), *Ibis*, 1891, p. 122; *id. op. cit.* 1892, pp. 310, 555.

"Purplish black; wings and tail black, with a large white patch on the inner wing-coverts; forehead and crown dark crimson, continued down the sides of the neck; ear coverts and cheeks black, washed with crimson; throat and fore neck black, each feather tipped with ashy grey; breast and abdomen bright lemon yellow, separated from the spotted throat by a band of bright crimson; sides of body black, largely spotted with yellow; under wing coverts white. Total length, 9 inches; culmen, 0·9; wing, 4·0; tail, 3·8; tarsus, 1·05." (*Sharpe*). *Habitat.* Mt. Elgon, East Africa.

goffini (*Schleg.*). Six. West Africa (Fantee; Gold Coast).

togoensis, *Rchnw. Ber. Allg. Deutsch. Orn. Ges.*, Nov., 1891, p. 3; *id. J.f.O.*, 1891, p. 394; *id. op. cit.* 1892, p. 131; *id. J.f.O.* 1897, Taf. i.

"Like *T. goffini*, but with the purple red colour of the sinciput, the temporal band and parotid region, much paler; white scapular spot larger; feathers of the throat black on their basal portions, with rose-white tips. Total length, 240 mm.; wing, 102-107; tail, 100-107; bill, 22-23; tarsus, 27-29." (*Reichenow, J.f.O.* 1892, p. 131.) *Habitat.* Togoland.

CAPITO, *Vieill.*

aurovirens (*Cuv.*).

maculicoronatus, *Lawr.* One. ♀. Central America (Panama, Nichi).

hypoleucus, *Salv. Bull. B.O.C.* xlviii. p. xvi. (1897).

"Above black; middle of the pileum and forehead scarlet; nape dull white; scapulars whitish, meeting on the middle of the back; beneath white; a pale dusky band across the chest; flanks slightly washed with yellow; under wing-coverts white; primaries internally pale dusky; beak yellowish, horn-colour at the tip; feet lead-colour. Total length, 8 inches; wing, 3·5; tail, 2·25; tarsus, 1·0; bill from gape, 1·2." (*Salvin*). *Habitat.* Valdivia, State of Antioquia, Columbia (3800 ft.).

squamatus, *Salv.*; quinticolor, *Elliot.*

T niger (*P.L.S. Müll.*). Eight. 4 ♂, 4 ♀. Cayenne. Surinam.

No. 4 (= 1466 Lord Derby's Mus.) from the Leverian Museum is probably the type of *Cayenne Barbet*, Lath. Gen. Syn. 1, pt. 2, p. 495 (1782).

punctatus, *Less.* Seven. 4 ♂, 3 ♀. New Grenada. Ecuador (Rio Napo). Bolivia.

No. 5 (= 1460*c*, Lord Derby's Mus.), a female, with its locality not recorded, differs from another female from Ecuador in having the black markings on the under surface in the form of spots, not lines. A male from Bolivia, apparently collected by Bridges, differs from the New Grenadan specimen, in having the orange of the throat of a slightly deeper hue, and the black lines on the flanks much less pronounced.

auratus (*Dumont*). Two. ♂, ♀. Brazil (Rio Negro).

T richardsoni, *G.R.Gr.* Nine. 9 ♂. New Grenada (Anolaima). Bogota. Ecuador (Rio Napo).

In all these specimens (except in the Ecuador one, where the feathers of the throat are lost), the chin spot is composed of black feathers with red tips. The red varies in amount, but it is always present. We have therefore merged *C. granadensis*, Shelley, apparently founded on not more than two male specimens, in the above species, since we have specimens both from Bogota and

Grenada, with black feathers tipped with red on the chin spot. The specimen from Ecuador, which is apparently a young bird, is much darker above, with the silver-grey collar on the hind neck less clearly defined, the head black, with only the tips of the feathers crimson. It is the Type of *Capito sulphurea*, Eyton, Contr. Orn. 1849, pp. 130-131.

aurantiicollis (*Sclat.*). One. ♂. Western Brazil (Upper Ucayali, June).

steerii, *Sclat. & Salv.*; glaucogularis, *Tsch.*

T **versicolor** (*P.L.S. Müll.*). One. Bolivia.

Type of *Eubucco pictus*, Sclat. P.Z.S. 1857, p. 268, and of *Capito pictus*, Sclat. *Ibis*, 1861, p. 187.

T **bourcieri** (*Lafr.*). Five. 2 ♂, 3 ♀. Colombia. New Grenada (Anolaima).

No. 3 (Female) from Colombia is a Co-type of *Capito capistratus*, Eyton, Contr. Orn. 1849, p. 131.

salvini, *Shelley*. Three. 2 ♂, ♀. Central America (Costa Rica).

This species is very doubtfully distinct from the preceding. Mr. Salvin says "this Capito is very nearly allied to, if really distinct from, *C. bourcieri*." The males are identical, and the females are said to differ in the absence of the blue grey frontal band in *C. salvini*. Traces of this, however, are present in our female specimen from Costa Rica.

TETRAGONOPS, *Jard.*

rhamphastinus, *Jard.*; frantzii, *Sclat.*

RHAMPHASTIDÆ.

RHAMPHASTOS, *Linn.*

toco, *Müll.* Seven. ♂, ♂ juv. Brazil (Para).

carinatus, *Swains.* Nine. ♂, ♀. Mexico. Honduras. Vera Paz.

brevicarinatus, *Gould.*

tocard, *Vieill.* One. [Mexico].

ambiguus, *Swains.* One. Bogota.

erythrorhynchus, *Gm.* Eight. ♂, ♀, skeleton.

inca, *Gould.*

The Type of this species was described from Lord Derby's collection, but it is not now to be found in the Museum.

cuvieri, *Wagl.* Three. New Grenada.

culminatus, *Gould.* One.

This is the specimen figured by Gould, Mon. Rhamp. Ed. 1, pl. 1 (1834). The Type described by Gould, P.Z.S. 1833, p. 70, *ex* Zool. Soc. Coll., does not appear to be in existence.

T **citreolæmus**, *Gould.* One. Santa Fé de Bogota.

Purchased from Gould in March, 1844; probably a Co-type of the species (*cf.* P.Z.S. 1843, p. 47).

osculans, *Gould.*

ariel, *Vig.* Five. ♂. Brazil.

vitellinus, *Licht.* Three.

dicolorus, *Linn.* Six. ♂. Brazil.

ANDIGENA, *Gould.*

hypoglaucus (*Gould*). One.

T **cucullatus**, *Gould.* Two. Bolivia.

Co-types of the species, P.Z.S. 1846. p. 69.

laminirostris, *Gould.* Two. Ecuador.

T **nigrirostris**, *Waterh.* Four. Bogota.

No. 2 is the Type of the species, P.Z.S. 1839, p. 111.

spilorhynchus, *Gould.* One.

bailloni (*Vieill.*). Three. ♂, ♀. Brazil.

PTEROGLOSSUS, *Ill.*

aracari (*Linn.*). Six. 2 juv.

No. 6 juv. has been figured Gould, Mon. Rhamp. Ed. 1, pl. 12 (1834).

wiedi, *Sturm.* Two. Demerara.

formosus, *Cab.*

castanotis, *Gould.* Five. ♀. Brazil. Bolivia.

pluricinctus, *Gould.* One. Brazil (Para).

torquatus (*Gm.*). Nine. ♂. Mexico. Vera Paz (Choctum, January). Guatemala. Honduras.

frantzii, *Cab.*; erythropygius, *Gould*; sanguineus, *Gould.*

bitorquatus, *Vig.* Two. Brazil (Para).

No. 1 is figured by Gould, Mon. Rhamp. Ed. 1, pl. 16 (1834).

sturmi, *Natt.*

T **flavirostris,** *Fraser.* Three. Sarayacu.

No. 1 is the Type of the species, P.Z.S. 1840, p. 60.

azaræ, *Vieill.* Two.

humboldti, *Wagl.* One. ♂. Brazil (Rio Negro).

insciptus, *Swains.* Three. 2 ♂, ♀.

Nos. 1, and 2, *ex* Bullock Mus., have been figured by Gould, Mon. Rhamp. Ed. 1, pl. 23 (1834).

viridis (*Linn.*). Six. 4 ♂, 2 ♀. Surinam. Demerara.

didymus, *Sclat.*

beauharnaisi, *Wagl.* Four.

SELENIDERA, *Gould.*

maculirostris (*Licht.*). Three, 2 ♂, ♀. Brazil.

gouldi (*Natt*). Three. 3 ♂. Brazil (Para).

langsdorffi (*Wagl.*). One. ♂. Brazil [Rio Janeiro].

reinwardti (*Wagl.*). One.

nattereri (*Gould*).

piperivora (*Linn.*). Six. 4 ♂, 2 ♀. Guiana. [Central America].

spectabilis, *Cass.*

AULACORHAMPHUS, *G.R.Gr.*

T **sulcatus** (*Swains.*). Three. Guiana.

No. 1 is Type of *Blue-eared Toucan*, Lath. Gen. Hist. ii. p. 294 (1822), and of the species, Q. J. Sc. ix. p. 267; Zool. Ill. (1) i. pl. 44 (1820-21).

erythrognathus, *Gould*; calorhynchus, *Gould.*

T **derbianus,** *Gould.* Two. Cordillerian Andes. Bolivia.

No. 1 is the Type of the species described P.Z.S. 1835, p. 49.

whitelyanus, *Salv. & Godm.*

prasinus (*Licht.*). Seven. Mexico. Vera Paz. (Coban). Guatemala.

wagleri (*Sturm*).

albivittatus (*Boiss.*). Four. Juv. Bogota.

hæmatopygius (*Gould*). Three. ♂, ♀. Cordillerian Andes. New Grenada.

cæruleicinctus, *D'Orb.* Three. Bolivia.

cæruleigularis, *Gould*; cyanolæmus, *Gould.*

atrogularis (*Sturm*). One.
dimidiatus, *Ridgw.*

PICIDÆ.

PICINÆ.

GEOCOLAPTES, *Swains.*

olivaceus (*Gm.*). Eight. 5 ♂, 2 ♀. South Africa (Kroonstadt, December).

COLAPTES, *Swains.*

auratus (*Linn.*). Sixteen. 9 ♂, 7 ♀. Canada (Niagara, June; New Brunswick; Assiniboina R., May). United States (Georgia).

chrysocaulosus, *Gundl.*; gundlachi, *Cory.*

chrysoides (*Malh.*). Two. ♂ jr., ♀. Lower California (Cape San Lucas). Arizona (Tucson, March).

chrysoides, *subsp.* brunnescens, *Anthony, Auk.* xii. p. 347 (1895).

"Differing from *C. chrysoides* in darker upper parts, and slightly smaller size.

"Above brown, of a shade approximating bistre, barred with numerous black bars; pileum cinnamon brown; upper tail coverts white, with large rounded spots of black; below, greyish-white, with numerous round and cordate black spots; throat, dark ash grey; moustache, bright scarlet; quills and inner surface of wings chrome yellow; lower surface of tail wax-yellow; terminal third black." (*Anthony*). *Habitat.* San Fernando, California.

mexicanus, *Swains.* Nine. 5 ♂, 4 ♀. Vancouver Island. California (Nicasio, January; Monterey). Colorado (Pueblo, October). Canada (North-West Territory, Alberta, Jasper's House, April, May).

Two specimens, ♂, ♀, from Vancouver Island, are, as Hargitt observes (Cat. Birds, Brit. Mus. xviii. pp. 18-19 1890), considerably larger than examples from other localities. The colour of the upper parts is much darker, and the male has a pronounced vinous shade on the upper breast and belly. The female has the rufous malar stripes, slightly more pronounced than in a Californian bird, but this is also the case in a young female from Colorado. We have no specimens from Mexico.

submexicanus (*Sundev.*). Four. 3 ♂, ♀. Central America (Guatemala, Volcan de Fuego, November; Vera Paz, Coban).

ayresi, *Aud.* Two. ♂, ♀. Canada (North-West Territory, Alberta, Jasper's House, May).

This species is very generally regarded as a hybrid between *C. auratus* and *C. mexicanus.* For an elaborate paper on the subject *cf.* Allen, Bull. Amer. Mus. iv. p. 21 *et seq.* (1892).

A male bird, from Jasper's House, differs from a male specimen of *C. mexicanus* from the same locality, in having the colour of the inner side of the quills and under surface of the tail pale orange yellow, with a flush only of pink instead of bright salmon pink, with no suggestion of yellow. The feathers of the malar region are grey on their basal portions; this is succeeded by a band of black running right across the feather, while the extreme tips and margins are dark crimson.

As in *C. auratus* there is a vermilion nuchal band. The female specimen, which is without locality, and which we can only doubtfully refer to this species, has the colour of the quill lining, and under surface of the tail intermediate between *C. auratus* and *C. mexicanus.*

campestris (*Vieill.*). Five. 2 ♂, 2 ♀. Brazil (Bahia). Bolivia. [Mexico].

agricola (*Malh.*). Three. 2 ♂, ♀. Brazil. [Chili]. Probably Bolivia.

rupicola, *D'Orb.* Three. ♂, 2 ♀. Bolivia.
Cf. Bridges, P.Z.S. 1849, pp. 29-30.

puna, *Licht.* Three. 2 ♂, ♀. Peru.

cinereicapillus, *Reichenb.*

T pitius (*Mol.*). Six. 3 ♂, 3 ♀. Chili (Santiago).
Nos. 1, 2, and 4, collected by Bridges are probably the Types of *C. pitiguus,* Bridges, P.Z.S. 1843, p. 114.

HYPOXANTHUS, *Bp.*

T **rivolii** (*Boiss.*). Six. 4 ♂, 2 ♀. Venezuela (Sierra Nevada de Merida). Bogota.

Nos. 2 and 3, ♂, ♀, from Bogota are the Types of *Picus elegans*, Fraser, P.Z.S. 1840, p. 59.

rivolii, *subsp.* **brevirostris,** *Tacz.* Three. 3 ♂ jr. Ecuador (Chimancha). Peru.

atriceps, *Sclat. & Salv.* Two. Bolivia.

GECINUS, *Boie.*

T **viridis** (*Linn.*). Ten. 5 ♂, 3 ♀. England (Devonshire, Morchard Bishop; Norfolk, Sparham, August; Lincolnshire, Bourn, June and July; Belvoir Chase). Russia (St. Petersburg, September).

No. 10 from Belvoir Chase is an albino from the Leverian Museum. It is the Type of *Green Woodpecker var B = Straw-Coloured Woodpecker*, Lath., Gen. Hist. iii. p. 348 (1822).

sharpii, *Saund.* Two. 2 ♂. Spain (Andalusia, Coto del Rey, February).

vaillanti (*Malh.*). Two. ♂, ♀. Algeria (Weled Messaoud, April).

vaillanti, *subsp.* kœnigi, *Erlanger, Ornith. Monatsber.* v. p. 187 (1897).

"Closely allied to *G. vaillanti*, but with the feathers of the back clearly margined or spotted with pale whitish sulphur-yellow; the vertex of the female less spotted with black, and the abdomen in immature birds almost without black markings." (*Erlanger*). *Habitat.* Tunis (Ain-bou-Dries).

awokera (*Temm.*). Six. 3 ♂, 3 ♀. Japan (Yokohama, November; Tokio; Nikko, April).

squamatus (*Vig.*). Five. 2 ♂, ♀. Northern India (Simla; Gilgit, Littledale Coll.).

flavirostris, *Menzbier.*

G. gorii, Harg. has, on comparison of the Types, been shown to be a synonym of this species (*cf.* Dresser, B. Europe, Suppl. pt. vi. pl. dcxc.).

vittatus (*Vieill.*). Six. 2 ♂, 4 ♀. Assam. Java.

viridanus (*Blyth*). Two. 2 ♀. Burmah. Tenasserim (Bankasoon, December).

striolatus (*Blyth*). Nine. 7 ♂, 2 ♀. Northern India (Himalayas). Southern India (Nellore). Assam. Burmah.

canus (*Gm.*). Five. 2 ♂, 3 ♀. Sweden. Switzerland. Japan (South Yezo, October).

guerini (*Malh.*). Two. ♂, ♀. China (Fokien). Formosa.

occipitalis (*Vig.*). Eleven. 8 ♂, 3 ♀. Northern India (Sikkim; Nepaul). Assam. Burmah (Tonghoo).

chlorolophus (*Vieill.*). Fifteen. 9 ♂, 6 ♀. Northern India (Sikkim; Nepaul; Dehra Dhoon; Darjeeling). Assam. Burmah.

chlorogaster (*Jerd.*). Three. ♂, 2 ♀. Southern India (Madras). Ceylon.

puniceus (*Horsf.*). Two. ? Java.

puniceus, *subsp.* **observandus,** *Hartert, Nov. Zool.* iii. p. 542 (1896); *Hargitt, Cat. Birds, Brit. Mus.* xviii. pp. 64-66 (1890) (*partim*).

Eleven. 6 ♂, 5 ♀. Malay Peninsula (Malacca). Sumatra (Lampong Residency, Gunung Tetahan). Borneo (Segilind R.).

Specimens from the Malay Peninsula, Sumatra, and Borneo, "have the orbital region less dusky [than those from Java]; the sides of the face and neck of a paler green" (*Hargitt*); ". . . . the back more of a *yellowish* green, and the rump much more golden." (*Hartert*).

Our specimens differ from the Typical form from Java in being smaller, and much brighter on the back and rump, as noted by Hartert; but the differences observed by Hargitt are not so noticeable.

erythropygius, *Elliot.*

nigrigenis, *Hume.* Two. 2 ♂. Burmah.

CHLORONERPES, *Swains.*

chrysochlorus (*Vieill.*).

brasiliensis (*Swains.*). One. ♂. Brazil.

xanthochlorus, *Sclat. & Salv.*; capistratus (*Bp.*).

erythropsis (*Vieill.*). Five. 4 ♂, ♀. Brazil.

leucolæmus (*Malh.*). One. ♂. Bolivia.

flavigula (*Bodd.*). Three. 2 ♂, ♀. Surinam.

aurulentus (*Temm.*). Three. 2 ♂, ♀. [Antilles].

callopterus, *Lawr.*; *Salv. & Godm.*, *Biol. Centr.-Amer. Aves.* ii. pp. 409-410, pl. lix. fig. 1 (*1895*).

simplex, *Salv.*; *Salv. & Godm.*, *tom. cit.* p. 410, pl. lix. fig. 2 (1895).

æruginosus, *Licht.* Four. ♂, 3 ♀. South Mexico.

auricularis, *Salv. & Godm.*; *iid. Biol. Centr.-Amer. Aves.* ii. p. 408, pl. lix.*a*, fig. 3 ♂ (1895).

godmani, *Harg.*; *Salv. & Godm.*, *tom. cit.* p. 409, pl. lix.*a.*, figs. 1, 2, ♂, ♀. (1895).

yucatanensis (*Cabot*). Three. 2 ♂, ♀. Central America (Guatemala, Vera Paz, Coban, November).

gularis, *Harg.* Two. ♂, ♀. U.S. Colombia (Antioquia).

T rubiginosus (*Swains.*). Ten. 6 ♂, 4 ♀. Trinidad. Venezuela (Orinoco). New Grenada (San Christoval).

No. 9, ♀ (=3778 Lord Derby's Mus.), from Trinidad, is the Type of *Trinidad Woodpecker*, Lath. Gen. Hist. iii. p. 400 (1822).

striatus (*Müll.*). Four. ♂, 3 ♀. San Domingo (Almereen; Samana).

CAMPOTHERA, *G.R.Gr.*

nubica (*Gm.*). Seven. 3 ♂, 4 ♀. [Egypt]. Nubia. Abyssinia. Central Africa (Wakkala, April; White Nile).

Nos. 1 and 2 (=3777, 3777*a* Lord Derby's Mus.) labelled "Nubia" are from Dr. Ruppell's collection. The species appears to be very variable in the size and character of the spots on the under surface. The succeeding species, if really distinct, appears to be intermediate between *C. nubica* and *C. notata.*

neumanni (*Rchnw.*) *Ornith. Monatsber.* iv. p. 132 (1896).

"In general characters approaching *D. nubicus*, but darker above, the back and wing feathers dusky olive-brown, with very small and scattered whitish spots; above each of these white spots is a more or less clearly defined black one; on the wings the whitish spots are more scattered and smaller, approaching to streaks, ear coverts almost pure black, with only very fine white streaks; lores pale yellowish brown; a small temporal streak and a small streak from the lores (*Zügel*), over the lower cheeks, running parallel to the red malar stripe, white; whole under surface up to the chin (*i.e.* the upper throat), densely covered with large black spots, which run together, and become clearly defined bands on the flanks; the chin, however, that is to say, the feathered region between the rami of the mandible, brownish white; the red of the occiput brighter than that of the top of the head and malar stripe; shafts of the primaries and tail feathers bright gold. Wing, 112; tail, 70; bill, 27; tarsus, 22 mm." (*Reichenow*). *Habitat.* Central Africa (Lake Naiwascha).

notata (*Licht.*). Four. ♂, 3 ♀. South Africa (Knysna; Cape of Good Hope).

malherbii (*Cass.*).

Cf. Reichenow, Ornith. Monatsber. iv. p. 131 (1896).

abingdoni (*Smith*). Two. ♂ jr., ♀. South Africa (Port Natal).

abingdoni, *subsp.* mombassica, *Fisch. & Rchnw.*

smithii, *Malh.* Three. ♂ jr., 2 ♀. South Africa (Ovampoland; Damaraland, Otjimbinque, June).

cailliaudi (*Malh.*).

scriptoricauda (*Rchnw.*). *Ornith. Monatsber.* iv. p. 131 (1896).
= *C. cailliaudi* (Harg. *nec* Malh.) Cat. Birds, Brit. Mus. xviii. p. 102 (1890).

punctata (*Valenc.*). Five. 2 ♂, 3 ♀. West Africa (Senegal; Gambia; British Combo, Barcote, April).

balia (*Heugl.*). (= *C. punctata* (Val.), Tristr. Cat. Coll. Birds, p. 104). One. ♂. East Africa (Ribé, August).

This specimen has been compared with, and, except for the sexual characteristics, agrees perfectly with the bird collected by Bohndorff in the Niam-niam country, and which has been referred by Sharpe and Hargitt to this species. Reichenow, however, states that Heuglin's type, which is preserved in Stuttgart, is unique, and that Bohndorff's specimen probably belongs to some other species (*cf.* Ornith. Monatsber. iv. p. 130).

bennetti (*Smith*). Four. 4 ♀. Central Africa (Zambesi). South Africa (North-East Transvaal; Limpopo River; Port Natal).

bennetti, *subsp.* capricorni, *Strickl. & Sclat.*

maculosa (*Valenc.*). One. ♂. West Africa (Ashantee).

tæniolæma, *Rchnw. & Neum. Ornith. Monatsber.* iii. pp. 73-74 (1895).

Upper surface of the body and coverts olive green; pileum and occiput red; sides of the head and neck white, densely banded with black; primaries, fuscous olive green on the outer web, with the exception of the external ones, and spotted with yellowish white on their inner margins (the middle primaries on their outer webs also); under wing coverts yellowish white, spotted with fuscous; shafts of the primaries pale yellow beneath; tail feathers olive brown, with almost obsolete bars, and with very narrow pale borders; blackish at the tip, yellowish beneath, with their shafts pale yellow on the under surface. Total length, 210; wing, 107; bill from gape, 19-21; tarsus, 18-19 mm. Female differs in having the pileum black, spotted with white, and the tail feathers spotted at the tips with fulvous. (*Reichenow & Neumann*). *Habitat.* Central Africa, Guasso-Massai and Eldoma Station (Mau).

permista, *Rchnw.*; caroli (*Malh.*).

nivosa (*Swains.*). One. ♂. West Africa (Gambia).

tullbergi, *Sjöstedt, J.f.O.* 1892, p. 313; *id. Svenska. Ak. Handl.* xxvii. No. 1 p. 55, Taf. iv. fig. 1 (1895) (♀); *Rchnw. J.f.O.* 1896, p. 53.

"♀ ad. above olive green with a fulvous tinge; uropygium, wing-coverts, and back uniform in colour. Primaries dull brown; the lesser ones externally and the greater ones on the external margin towards the base (with the exception of the two first) olive green. Inner webs spotted with whitish yellow; shafts of the primaries brownish black, pale yellowish beneath. A large scarlet spot on the carpal angle. Tail feathers unspotted, olive brown above, yellowish green beneath, with their shafts brown above and yellow beneath. Pileum black, feathers ashy at the base and yellowish at the tips. A small preocular spot red. Throat, neck, upper breast, and sides of the head whitish yellow, spotted with dull greenish. Chest, abdomen, and under tail-coverts yellow spotted with dull greenish. Spots on the chest rounded and more scattered. Flanks barred; middle of the abdomen unspotted; under wing-coverts mottled with fuscous; shafts of the primaries almost uniform. Iris red, 5·5 mm. Length, 19; bill, 2·2; wing, 11·1; tail, 7 cm." (*Sjöstedt*). *Habitat.* Cameroons, Itoki Na N'Golo.

CHRYSOPTILUS, *Swains.*

melanochlorus (*Gm.*). Three. 2 ♂, ♀. Paraguay.

cristatus, *Vieill.* Four. 2 ♂, 2 ♀. Chili. Bolivia.

icteromelas, *Vieill.* (= *C. punctigula* (Bodd.), Tristr., Cat. Coll. Birds, p. 104). Three. 2 ♂, ♀. Bolivia. [Bogota].

species incert. prope icteromelas. One. ♂.

This specimen, in very bad preservation, and without any indication of locality, differs from *C. icteromelas* in having the lighter bars on the plumage very much darker.

chrysomelas (*Malh.*). (= *C. melanochlorus* (Gm.), Tristr., Cat. Coll. Birds, p. 104). Five. 4 ♂ (1jr.), ♀. Brazil.

mariæ, *Harg.* One. ♂. Brazil (Para).

This locality may be erroneous, as Mr. Hargitt described the species from North-Eastern Peru.

punctigula (*Bodd.*). Seven. 3 ♂, 4 ♀. British Guiana (Roraima). Cayenne.

guttatus (*Spix*). Three. 3 ♂. Bogota.

atricollis (*Malh.*). One. ♀. "Cordilleras. South Peru."

CHRYSOPHLEGMA, *Gould.*

miniatum (*Forst.*).

niasense, *Büttik. Notes Leyd. Mus.* xviii. pp. 169-170 (1896).

"This species is very closely allied to *C. malaccense* and *C. miniatum*, and ought to be placed between both mentioned species in the system. From *C. malaccense* it is at once distinguished by the much longer occipital crest, which is obviously more lively red, the red colour occupying the feathers nearly down to the base. The mantle is very strongly varied with lively red, while there are at the best some few dull red markings on the mantle of *C. malaccense*. The whole back and rump are much more lively yellow than in *C. malaccense*. In these peculiarities our species agrees very much with *C. miniatum* from Java, to which it is, in fact, more closely allied than to *C. malaccense*, but its red occipital crest is somewhat darker than in *C. miniatum*, and not fully as long, while the yellow nuchal feathers are longer in the Nias birds, reaching beyond the red occipital feathers. The red on the mantle is, as a rule, less richly extended over the mantle than in *C. miniatum*, though in our single male the whole mantle is almost entirely glossy red, much more so than in some of our Javan specimens. These differences and affinities are the same in the males as well as in the females. In size the Nias birds do not differ from the two allied species. Wing, 12-12·3 cm.; tail, 7·2; culmen, 2·7-30; tarsus, 2·3." (*Büttikofer*). "Iris red, bill black, lower mandible yellow, feet dirty yellow. Native name *To-hia*" (*Kannegeiter*). *Habitat.* Nias Island, West of Sumatra.

malaccense (*Lath.*). Twenty. 10 ♂, 8 ♀. Burmah. Malay Peninsula (Malacca). Borneo (Segilind R.; Banjermassim).

mentale (*Temm.*). Three. ♂, 2 ♀. Java.

humii, *Harg.* Eleven. 4 ♂, 7 ♀. Malay Peninsula (Malacca; Singapore). Sumatra (Lampongs, Gunung Trang). Borneo (Segilind R.; Trusan, April).

flavinucha (*Gould*). Ten. 6 ♂, 2 ♀. Northern India (Nepaul; Darjeeling). Burmah.

ricketti, *Styan, Bull. B.O.C.* lii. p. xl. (1898); *id. Ibis,* 1898, p. 429.

"*Adult male.* Most nearly allied to *C. pierii*, but differs from that and other allied species in having the primaries coarsely barred with chestnut and black to the extremity; the chin is, moreover, rufous streaked with black, and only the malar region is white with a faint yellowish tinge" (*Styan*). *Habitat.* Ching Ting, Fokien, China.

pierrii, *Oust.*; wrayi, *Sharpe.*

mystacale, *Salvad.* Two. ♂, ♀. Sumatra (Palembang, Hoedjoeng, Blalau (3,000 feet), January).

GAUROPICOIDES, *Malh.*

rafflesi (*Vig.*). Eleven. 6 ♂ (1 jr.), 4 ♀. Malay Peninsula (Malacca; Singapore). Borneo (Silam; Trusan, April).

GECINULUS, *Blyth.*

grantia (*McClell.*). Two. ♂, ♀. Sikkim, June. Assam.

viridanus, *Slater, Ibis,* 1897, p. 176.

"Bears a general resemblance to *G. grantia* (McClell.) of India. It will be enough, perhaps, to point out the differences between the two. *G. viridanus* is a dull green *G. grantia*; the red on the back is less vivid, and is much mixed up with green; the yellow on the throat, sides of face, and back of neck in *G. grantia*, becomes in *G. viridanus* dull dingy green, the hinder crown alone being yellowish. The rosy feathers of the fore-crown are much less vivid in *G. viridanus*. But the chief distinction lies in the much more boldly marked wings and tail of the latter, which are black, distinctly barred with buff, and a wash of rich deep red on the top of all. The foregoing rather suggests a description of the young bird of *G grantia*, but the colouring is really very dissimilar, and in the example sent me by Messrs. La Touche and Rickett, the rosy feathers of the head are confined to the forehead, showing the bird to be an adult male. Lastly, the Chinese bird has a longer wing by more than ·3 inch (5·33 to 5·0 in *G. grantia*), though in other respects much of the same size." (*Slater*). *Habitat.* Southern China.

viridis, *Blyth.* One. ♀. Burmah.

ASYNDESMUS, *Coues.*

torquatus (*Wils.*). Six. 3 ♂, 2 ♀. California (San Bernardino Co., April, September, October).

MELANERPES, *Swains.*

T **erythrocephalus** (*Linn.*). Twelve. ♂, ♀, 3 jr. United States (Ohio; Illinois, Eaglewood, May).

No. 10, jr. (= 3872*a*, Lord Derby's Mus.), is one of the Types of *White-rumped Woodpecker*, Lath. Gen. Syn. i. pt. iii. p. 563 (1782); id. Gen. Hist. iii. p. 397 (1822).

candidus (*Otto*). Six. 5 ♂, ♀. Brazil (Para). Bolivia.

formicivorus (*Swains.*). Six. 3 ♂ (1 jr.), 3 ♀. Mexico.

formicivorus, *subsp.* **melanopogon** (*Temm.*). Five. 2 ♂, 3 ♀. California (Marine Co. Nicasio, April; Visalia, May). [Brazil].

Messrs. Salvin & Godman (Biol. Centr. Amer. Aves. ii. pp. 412-414) consider that this sub-species cannot be separated from *M. formicivorus typicus*. Californian specimens can, however, be at once distinguished by their much broader black pectoral band.

formicivorus, *subsp.* angustifrons, *Baird.*

formicivorus, *subsp.* aculeatus, *Mearns, Auk.* vii. pp. 249-251 (1890).

"*Adult*:—General size and colouring intermediate between *M. formicivorus* and *M. formicivorus bairdi*; throat less yellow than in either of them; bill shorter, more slender, and less arcuate than in either of the other forms of *M. formicivorus*; white striping of chest more than in the Pacific form, less than in *formicivorus*.

"*Young in first plumage*:—Similar to adults, but lacking the black band across the fore part of the crown, the whole top of the head being red *in both sexes*; colours duller, with the quill-feathers, neck, and breast slightly brownish; pectoral band broader, with less of the white striping; black streaks of sides less sharply defined, having a blurred appearance. Dimensions:—Male—Length, 232-250 mm.; alar expanse, 442-472; wing, 137-151; tail, 82-97; culmen (chord), 24-29; tarsus, 21-24; middle toe and claw, 24-27. Female—Length, 231-248; alar expanse, 437-475; wing, 140-150; tail, 83-95; culmen (chord), 23-28; tarsus, 19-24; middle toe and claw, 22·5-26." (*Mearns*). *Habitat.* Southern United States, southward through the mountainous portions of Western Mexico.

flavigula, *Reichenb.* Five. 3 ♂, 2 ♀. [California]. New Grenada. Bogota.

xantholarynx, *Reichenb.*

cruentatus (*Bodd.*). Eleven. 4 ♂, 7 ♀. Cayenne. Bogota. Brazil. Bolivia.

rubrifrons (*Spix*). Three. 2 ♂, ♀. Surinam (Albina, April). Northern Brazil.

portoricensis (*Daud.*); chrysauchen, *Salv.*

pulcher, *Sclat.* One. ♀. Bogota.

flavifrons (*Vieill.*). Five. 2 ♂, 3 ♀. Brazil (Bahia).

cactorum (*Lafr. & D'Orb.*). Four. 3 ♂, ♀. Argentina (Buenos Ayres). Bolivia.

herminieri (*Less.*).

pucherani (*Malh.*). Three. ♂, 2 ♀. Honduras (Omoa). Vera Paz (Coban).

radiolatus (*Wagl.*). Five. 4 ♂, ♀. Jamaica.

superciliaris (*Temm.*). Two. 2 ♂. Cuba (Havana).

blakii (*Ridgw.*); nyeanus (*Ridgw.*).

bahamensis (*Cory*). *Auk.* ix. p. 270 (1892).

"Adult male similar to *C. blakii*, in having the entire underparts strongly tinged with olive green; the back is banded with black and yellowish green, not black and white as in *blakii*. The feathers on the flanks show a slightly reddish tinge; the forehead is dusky white; and the red at the base of the bill is somewhat darker than in *C. blakii*. Length, 9·50 inches; wing, 5·25; tail, 4·00; bill, 1·20; tarsus, ·85.

"The female has the forehead darker than the female of *C. blakii*, and has the underparts tinged with olive green as in the male." (*Cory*). *Habitat.* Great Bahama Island.

caymanensis (*Cory*).

carolinus (*Linn.*). Eleven. 9 ♂, 2 ♀. Canada (Niagara). United States (Illinois, Centralia, January; Florida; Texas, San Antonio, February).

dubius (*Cabot*). Five. 3 ♂, 2 ♀. Mexico (Tamaulipas). Honduras.

canescens (*Salv.*).

subelegans (*Bp.*). Three. 3 ♂.

We have followed Allen (Bull. Amer. Mus. Nat. Hist. iv. p. 55, 1892) and Richmond (Proc. U.S. Nat. Mus. xviii. pp. 666-668, 1895) in applying this name to the dark coloured form from Venezuela, Tobago and Trinidad, which is generally known as *M. terricolor* (Berlepsch). Our specimens are unfortunately without locality.

subelegans, *subsp.* **wagleri,** *Salv. & Godm.* Five. 2 ♂, 3 ♀ (2 jr.) Bogota.

Messrs. Salvin and Godman have shown (Biol. Centr. Amer., Aves. ii. pp. 416-417) that the name *M. tricolor* (Wagl.) previously used for this species is not tenable. Mr. Richmond (Proc. U.S. Nat. Mus. xviii. pp. 666-668, 1895), has also separated the Bogota bird from the form inhabiting "Chiriqui, Panama and the coast region of Colombia" (which is *M. wagleri*) as *M. subelegans neglectus.*

rubriventris (*Swains.*).

aurifrons (*Wagl.*). Three. 2 ♂, ♀. United States (Texas, Paint Rock, January; Allascosa, February).

aurifrons, *subsp.* **santa-cruzi** (*Bp.*). Two. ♂, ♀. Honduras (Omoa).

hoffmanni (*Cab.*). One. ♂. Costa Rica (San José, March).

uropygialis (*Baird*). Five. 3 ♂, 2 ♀. Lower California (Cape San Lucas). United States (Arizona, Camp Lowell, August). Mexico (Bolanos).

elegans (*Swains.*). Three. 3 ♂. Mexico (Tuxpan, Terro Tepic, May). [Chili].

hypopolius (*Wagl.*).

SPHYROPICUS, *Baird.*

varius (*Linn.*). Eighteen. 11 ♂ (4 jr.), 4 ♀ (2 jr.). Bermuda, November. United States (Illinois: Grand Crossing, April; Wankigan, April; Texas). Mexico. Honduras. Vera Paz (Tactic, January).

varius, *subsp.* **nuchalis,** *Baird.* Two. 2 ♂. United States (Colorado, Garland, June; Utah, Fort Bridger, May).

ruber (*Gm.*). Four. 4 ♂ (1 jr.). Vancouvers Island. California (Nicasio, November).

thyroideus (*Cass.*). Two. ♂, ♀ jr. United States (California, Camp Bidwell, July; Oregon, Fort Klamath, September.).

HYPOPICUS, *Bp.*

hyperythrus (*Vig.*). Seven. 5 ♂, 2 ♀. Sikkim. Nepaul.

poliopsis (*Swinh.*). One. ♂. Northern China (Chefoo, September).

DENDROCOPUS, *Koch*.

major (*Linn.*). Fourteen. 7 ♂ (3 jr.), 4 ♀, 3 pull. England (Durham, Greatham, October; Lincolnshire, Bourn, May and July; Devon, Morchard Bishop). Scandinavia. Spain (San Ildefonso, June).

major, *subsp.* **canariensis**, *König*, *J.f.O.*, 1889, p. 263; *id. op. cit.*, 1890, pp. 310, 350, 351, 354, taf. ii.
Two. ♂, ♀. Canary Islands (Gran Canaria, Pinar del Pajonal, April; Teneriffe, Villa Flor, April).

> "Closely resembling *D. major* from Europe, but darker beneath, and with a larger and more powerful bill." (*König*). *Habitat.* Canary Islands and Madeira.

major, *subsp.* **cissa** (*Pall.*). One. ♂. Siberia.

major, *subsp.* **pœlzami** (*Bogd.*). One. ♀. Caucasus, Lenkoran, January.

major, *subsp.* **leucopterus**, *Salvad.* Three. 2 ♂, ♀. Turkestan (Khoten, October; Tscher-tschen-darja).

japonicus (*Seebh.*). Eight. 4 ♂ (1 jr.), 4 ♀ (1 jr.). Japan (Yokohama; Chiusenze, July; Hakodati; Musashi-no-kumi; Nikko, April).

mauritanus (*Brehm*). (= *Picus numidicus*, Malh. spm. *a*, Tristr., Cat. Coll. Birds, p. 101.). One. ♀. Algeria (La Calle, January).

numidicus (*Malh.*). Three. 2 ♂, ♀. Algeria (Bou Hadjah, April). Mount Atlas.

stricklandi (*Malh.*).

nuttalli (*Gamb.*). Two. 2 ♂. Northern California (Red Bluff, April).

scalaris (*Wagl.*). Eight. 4 ♂, 4 ♀. United States (Arizona, Camp Lowell, August); Texas (San Antonio, September; Brownsville). Southern Mexico (Bolanos).

scalaris, *subsp.* **lucasanus** (*Xantus*). Two. ♂, ♀. Lower California (San José, April; La Paz, March).

scalaris, *subsp.* graysoni (*Lawr.*).

borealis (*Vieill.*). Five. 3 ♂, ♀. United States (California, Rosewood, November).

minor (*Linn.*). Three. ♂ 2, ♀. England (Stafford). Scandinavia.

minor, *subsp.* pipra (*Pall.*); minor, *subsp.* quadrifasciatus (*Radde*).

minor, *subsp.* danfordi (*Harg.*); lignarius (*Mol.*).

mixtus (*Bodd.*). Four. 2 ♂, 2 ♀. Bolivia. Chili.

cancellatus (*Wagl.*).

macii (*Vieill.*). Six. 3 ♂, 3 ♀. Northern India (Punjaub; Darjeeling). Assam.

atratus (*Blyth*).

brunneifrons (*Vig.*). Eight. 6 ♂, 2 ♀. Northern India (Punjaub; Simla, July; Gilgit (?) Littledale Coll.).

analis (*Horsf.*). Six. 4 ♂, 2 ♀. Burmah (Thayetmyo). Java (Bantam, Genteng, March).

andamanensis (*Blyth*). Two. ♂, ♀. South Andaman Islands (Mount Harriet, March).

cabanisi (*Malh.*). Four. ♂, 3 ♀. China (Fokien, Foochow; Kwei-chow, Upper Chuan-che).

himalayensis (*Jard. & Selb.*). Nine. 5 ♂ (2 jr.), 4 ♀. Cashmere. Northern India (Simla, July; Gilgit, Littledale, Coll.).

darjilensis, *Blyth.* Three. 2 ♂, ♀. Nepaul. Sikkim. Assam.

cathpharius, *Blyth.* Four. 3 ♂, ♀. Sikkim. Assam.

pyrrhothorax (*Hume*); pernyi (*Verr.*).

syriacus (*Hempr. & Ehrenb.*) Seven. 3 ♂, 4 ♀. Palestine (Samaria, December; Esdraelon, March; Mt. Tabor, February, March, April).

scindeanus (*Horsf. & Moore*).

arizonæ (*Harg.*). One. ♂ jr. Arizona, Santa Rita Mts., June.

villosus (*Linn.*). Fourteen. 8 ♂, 6 ♀. Canada (Ontario, Niagara; North-West Territory, Alberta: Jasper's House, March, April, May; Edmonton, November). United States (Illinois).

villosus, *subsp.* maynardi (*Ridgw.*).

villosus, *subsp.* **harrisi** (*Aud.*). Seven. 4 ♂, 3 ♀. Canada (Vancouver Island); British Columbia, Columbia R.; North-West Territory, May. United States (Colorado: Laramee, July; Pueblo, October). Mexico (Bolanos).

villosus, *subsp.* **jardinii** (*Malh.*). One. ♂. Vale of Mexico.

sanctorum (*Nelson*). *Auk.* xiv. p. 50 (1897).
One. ♂. Yucatan.

"The lower surface is an intense smoky brown, and the outer tail feathers have their light areas nearly as dark. The dorsal stripe in most cases is like the ventral surface, but is rather more fulvous. The Type of *sanctorum* measures as follows:—Wing, 111; tail, 64; culmen, 25; tarsus, 21 mm." (*Nelson*). *Habitat.* High mountains of Chiapas and Guatemala.

Before reading the description of this species we were in doubt as to where to place the above-mentioned specimen. It evidently belongs to this species, which is merely a small dark southern race of *D. jardinii.*

pubescens (*Linn.*). Fifteen. 11 ♂ (2 jr.), 4 ♀. United States (Ohio; Indiana, Lake Co., Whiting Sta., January; California, Haywards, June).

Several subspecies of this Woodpecker have been described, but we are unable to recognise them in the material before us.

pubescens, *subsp.* gairdneri (*Aud.*).

Mr. Hargitt recognises this form, which is said to differ from the typical *D. pubescens*, "in having the wing-coverts either entirely uniform, or with, at most, a few small spots of white upon the greater series; the spots on the quills smaller and fewer, and sometimes entirely wanting on the innermost secondaries; the under surface of the body darker, varying from smoky white to pale brown or smoky brown." A female specimen in this collection, from Haywards, California, is marked as this subspecies, but does not appear materially different from other specimens.

pubescens, *subsp.* meridionalis (*Swains.*).; *Oberholser, Proc. U.S. Nat. Mus.* xviii. pp. 547-548 (1895).

"*Subspecific characters.*—Similar to [*Dryobates*] *pubescens*, but smaller; the lower parts more brownish, the white markings of wings and tail averaging of less extent." (*Oberholser*). *Habitat.* South Atlantic and Gulf States, from South Carolina to Texas.

A few specimens of *D. pubescens* in the Collection are perhaps somewhat darker beneath, but are without locality, and are therefore left under typical *D. pubescens.*

pubescens, *subsp.* nelsoni (*Oberholser*). *Proc. U.S. Nat. Mus.* xviii. pp. 549-550 (1895).

"*Subspecific characters.*—Similar to [*Dryobates*] *pubescens*, but averaging larger, the under parts pure white instead of brownish; the lower tail-coverts and outer tail-feathers averaging with much less of black markings; red nuchal band of male averaging somewhat wider." (*Oberholser*). *Habitat.* Alaska and Northern British America.

leuconotus (*Bechst.*). Five. 4 ♂, ♀. Sweden (Gothland). Amoorland.

leuconotus, *subsp.* cirris (*Pall.*); leuconotus, *subsp.* subcirris (*Stejn.*); leuconotus, *subsp.* lilfordi (*Sharpe & Dresser*).

insularis (*Gould*). Two. 2 ♂. North Formosa, April.

namiyei (*Stejn.*).

PICOIDES, *Lâcep.*

tridactylus (*Linn.*). Eight. 5 ♂ (2 jr.), 3 ♀. Norway (Kjærringoe, July). Sweden, May and June; (Tinapong, January).

tridactylus, *subsp.* **crissoleucus** (*Bp.*). One. ♂. Siberia (Lake Baikal, May).

dorsalis, *Baird.*

americanus, *Brehm.* Four. 3 ♂ (1 jr.), ♀. Labrador. North-West Territory, Alberta, June.

americanus, *subsp.* alascensis, *Nelson.*

arcticus (*Swains.*). Eight. 3 ♂, 5 ♀. Canada (Hudson's Bay; North-West Territory, Alberta, Edmonton, November; Ontario, Trout Lake). United States (Maine, Bangor, April; Illinois, Chicago, April).

funebris, *Verr.*

ZENOPICUS, *Baird.*

albolarvatus (*Cass.*). Three. ♂, ♀. United States (California, Fort Crook, March; Oregon, Fort Klamath, October, November).

DENDROCOPTES, *Cab. & Heine.*

medius (*Linn.*). One. ♀ jr.

sancti-johannis (*Blanf.*). (= *Picus medius*, Linn. Tristr. Cat. Coll. Birds, p. 101). One. ♀. Asia Minor.

LIOPICUS, *Bp.*

mahrattensis (*Lath.*). Thirteen. 6 ♂ (1 jr.), 7 ♀. Northern India (Depalpore, January; Darjeeling; Maunbhoom, March). Southern India (Neilgherries; Nellore).

No. 7, ♀ (= 3964 Lord Derby's Mus.), labelled by Dr. Latham, *Mahratta Woodpecker*, is possibly a Type of the species.

DENDROPICUS, *Malh.*

cardinalis (*Gm.*). (= *D. zanzibari*, Malh., Tristr. Cat. Coll. Birds, p. 103). Eighteen. 11 ♂, 7 ♀. South Africa (Transvaal: Rustenberg, July; De Kaap, Bonanza Valley, May; Avoca Valley, June; Natal: Pinetown; Limpopo R., July; Zululand, July).

cardinalis, *subsp.* **zanzibari,** *Malh.* Four. ♂, 3 ♀. Central Africa (Kikombo, May; Nyssaland, Zomba, July, August, October).

minutus (*Temm.*). One. ♂. Senegal.

hemprichi (*Ehrenb.*). Two. ♂, ♀. Abyssinia, October.

These two specimens were collected by Dr. Rüppell.

lafresnayi, *Malh.* One. ♀. West Africa.

sharpii, *Oust.*

reichenowi, *Sjöstedt, Ornith. Monatsber.* i. p. 138 (1893); *id. Svenska, Vet.-Ak. Handl.* (27. No. 1), pl. 4 fig. 2 (1895); *Shelley, Birds Africa*, i. p. 132 (1896).

"Back yellowish green; wing feathers dull brown; the external margin of the primaries towards the base (with the exception of the first two), the external web of the secondaries, and the whole of the tertials of the same colour as the back; shafts of the wing feathers brownish black, yellowish beneath; primaries pale yellowish, with from two to four spots on the outer web, their inner webs, as well as those of the secondaries, with large whitish spots; forehead to the hinder margin of the eyes brown, strongly tinged with green; occiput scarlet; beneath pale yellowish green, broadly striped with dull green, lower part of the flanks barred with the same colour; throat, neck, and sides of head whitish, barely tinged with green and less striped than the abdomen; tail feathers dull brown above, greenish beneath, their edges tinged with yellowish green towards the base; lateral tail feathers paler, spotted with yellowish white on their inner margin; the next two without spots, and the innermost shaded with greenish on both edges; feet lead colour. Total length, 130 mm.; wing, 79; tail, 37; bill from gape, 17; tarsus, 13; iris, which is dull red, 4." (*Sjöstedt*). *Habitat.* Cameroons.

pœcilolæmus, *Rchnw. Ornith. Monatsber.* i. p. 30 (1893); *Shelley, Birds Africa*, i. p. 132 (1896).

"Very like *D. lafresnayi*, but with the throat pure white, with rounded black spots; abdomen uniform pale yellowish without stripes. Total length, 150-155 mm.; wing, 86; tail, 50; bill, 16-19; tarsus, 14." (*Reichenow*). *Habitat.* Sconga, Central Africa.

lepidus (*Cab. & Heine*).

T **abyssinicus** (*Stanl.*). One. ♂. Abyssinia.

Type of the species. Collected by H. Salt. (Lord Stanley in Appendix iv. to *Salt's Voyage to Abyssinia*, p. lvi., 1814).

gabonensis (*J. & E. Verr.*).

lacuum, *Rchnw. Ornith. Monatsber.* i. p. 178 (1893); *Shelley, Birds Africa*, i. p. 132 (1896).

"Very like *D. gabonensis*, but with the abdomen greenish yellow, thickly marked with rounded spots, not obscurely streaked or banded. In *D. gabonensis* the feathers of the abdomen are marked by a median band, and a subapical spot connected by a narrow shaft stripe. In *D. lacuum* these feathers have a rounded and a subapical spot separated by a very narrow and inconspicuous median band." (*Reichenow*). *Habitat.* Karevia, between Lakes Albert and Albert Edward.

lugubris, *Hartl.*

THRIPIAS, *Cab. & Heine.*

namaquus (*Licht.*). Thirteen. 8 ♂, 5 ♀. Central Africa (Kikombo, September; Zambesi). South Africa (Transvaal, Rustenberg, August; Damaraland, Elephant Vley).

schoensis (*Rüpp.*).

IYNGIPICUS, *Bp.*

semicoronatus (*Malh.*).

scintilliceps (*Swinh.*). One. ♀. Northern China (Pekin, October).

scintilliceps, *subsp.* doerriesi, *Harg.*

scintilliceps, *subsp.* **kaleensis** (*Swinh.*). Six. 4 ♂, 2 ♀. Formosa, April. Southern China (Chusan, May).

pygmæus (*Vig.*). Three. ♂, 2 ♀. Central India (Mohrgong, January). Nepaul. Assam.

wattersi, *Salvad.*

kizuki (*Temm.*). Three. 3 ♂. Japan (Sagami, September). Tsu-shima Island (Niimusa, March).

kizuki, *subsp.* **seebohmi,** *Harg.* Five. 3 ♂, 2 ♀. Japan (Sagami, Ihari-yama; Shimotsuki-no-kumi; Nikko, May).

kizuki, *subsp.* nigrescens (*Seebh.*).

aurantiiventris (*Salvad.*). One. ♂. Borneo (Paku, November).

pumilus, *Harg.*

canicapillus (*Blyth*). One. ♂. Burmah.

Dr. Blanford (Faun. Brit. Ind. Aves. Vol. iii. pp. 46, 47, 1895) considers that *I. pumilus*, Harg. is not separable from this species.

picatus, *Harg.*; grandis, *Harg.*

auritus (*Eyton*). Six. 3 ♂, 2 ♀. Sumatra (Palembang Residency: Kaban, Moesie R., December; Rawas R., December; Lampong Residency, Gunung Tetahan). Java. Borneo.

nanus (*Vig.*).

hardwickii (*Blyth*). Two. ♂, ♀. Himalayas.

gymnophthalmus (*Blyth*). One. ♂. Ceylon.

gymnophthalmus, *subsp.* **peninsularis**, *Harg.* (No. 2 = *Yungipicus hardwicki* (Blyth). Tristr. Cat. Coll. Birds, p. 100). Three. 2 ♂. Southern India (Coonoor Ghat, January).

Dr. Blanford (Faun. Brit. Ind. Aves. Vol. iii. pp. 48-49, 1895) does not recognise this subspecies.

validirostris (*Blyth*). (= *Yungipicus maculatus* (Scop.), Tristr. Cat. Coll. Birds, p. 100). Four. 3 ♀. Philippine Islands (Luzon: Cataguan; Manilla).

On the differences between this and other species of Iyngipicus inhabiting the Philippine Archipelago, *cf.* Hargitt (*Ibis*, 1895, pp. 114-115) and Grant (*op. cit.* 1896, pp. 471-472).

maculatus (*Scop.*).

menagei, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. pp. 14-15 (1894).

"*Adult male*:—General colour of the upper surface dark blackish brown. Top of head uniform with back. A small spot above and behind eye creamy white. Scarlet stripes on sides of occiput shorter than in *I. maculatus* and beginning further back. They are confluent on nape. Behind and under the scarlet stripe is a partially concealed spot of creamy white. Scapulars, interscapulars, and back barred with creamy white, some of the feathers with narrow brownish black shaft stripes. Under tail-coverts brownish black, broadly edged with buffy white. Tail brownish black, paler at base of feathers, and with both webs of feathers spotted with pale buff. Wing-coverts brownish black, each feather having one or two creamy white spots on outer webs. Wing brownish black. Outer five primaries with two or three very narrow creamy white spots on outer web, or with no spots at all. Tips of inner primaries, and inner webs of all primaries, spotted with creamy white. Secondaries similarly spotted on both webs. Ear-coverts rusty brown. A creamy white malar stripe extending back of ear-coverts. Chin and narrow stripe down centre of throat white, bordered by a broad stripe of brownish black on each side, the tips of feathers forming side stripes being brownish white; under surface with strong fulvescent wash. Feathers of upper breast with distinct brownish black shaft marks. Feathers of lower breast and abdomen with ill-defined streaks of the same colour. Feathers of flanks nearly white, with only slight dark markings. Under tail-coverts yellowish white with dark shaft stripes. Under surface of tail slightly lighter than upper, but tips of two central pairs of feathers nearly black. Under wing-coverts and axillaries creamy white, spotted with brownish black. The female lacks the scarlet head markings of the male, and the creamy white spot which is partially concealed in the male is in the female quite conspicuous; otherwise the sexes are alike. Five males measure in length, 5·84 inches; culmen, ·80; wing, 3·07; tail, 1·59; tarsus, ·59. Eight females: Length, 5·97; culmen, ·79; wing, 3·19; tail, 1·63; tarsus, ·66." (*Bourns & Worcester*). *Habitat.* Sibuyan.

leytensis, *Steere, List B. & Mamm. Philipp.* p. 9 (1890); *id. Ibis*, 1891, p. 306; *Grant, Ibis*, 1896, p. 472.

"Head black. Forehead and loral region cinnamon. Breast tinged with crimson." (*Steere*). *Habitat.* Philippine Islands (Leyte, Samar).

fulvifasciatus, *Harg.*

Mr. Grant has shown (Ibis, 1896, pp. 471-472), on comparison of the Types, that *I. basilanicus*, Steere (List B. & Mamm. Philipp. p. 9, 1890; Ibis, 1891, p. 308), is identical with this species.

ramsayi, *Harg.* One. ♂. Sulu Archipelago (Bongao, July).

temmincki (*Malh.*). One. ♂. Celebes (Tondano, August).

obsoletus (*Wagl.*). Five. 4 ♂, ♀. Central Africa (Langomeri, August).

DENDROBATES, *Swains.*

fumigatus (*Lafr. & D'Orb.*). Five. ♂ jr, 3 ♀. "Andes." Bogota.

caboti (*Malh.*). Two. 2 ♂ jr. Guatemala (Vera Paz, Choctum, January; Coban).

oleaginus (*Licht.*).

sanguinolentus (*Sclat.*).

The Type of this species, which was examined by Mr. Hargitt for the "Catalogue of Birds," can no longer be found in the Museum.

callonotus (*Waterh.*). Two. 2 ♂. [Mexico]. Ecuador.

peruvianus (*Tacz.*).

sanguineus (*Licht.*). Six. 4 ♂, ♀. Surinam.

kirtlandi (*Malh.*).

nigriceps (*Lafr. & D'Orb.*). Three. 2 ♂ (1 jr.), ♀. Ecuador (Intay). Bolivia.

murinus (*Malh.*) ; dignus (*Sclat. & Salv.*).

valdizani, *Berleps. & Stolzm. Ibis*, 1894, p. 401.

> "*Male*:—Related to *D. dignus*, Scl. et Salv. (from Colombia), but differs in having the upper wing-coverts with large yellowish spots, each with a red tip (not with very small and narrow whitish ones) ; upper tail-coverts almost uniform yellowish olive, very slightly banded with yellowish white and dull olive ; with the throat and breast, moreover, deep fulvous at the base, not greenish white ; lower abdomen also deep (? lætius) fulvous : beak also less robust and shorter. Length, 167 ; wing, 99·5 ; tail, 60 ; culmen, 20·5 ; tarsus, 18·5 mm." (*Berlepsch and Stolzmann*). *Habitat.* Central Peru (Huacras, Vitoc, 7,000 feet).

tephrodops (*Wagl.*). Three. 2 ♂.

tænionotus (*Reichenb.*). One. ♀. Bolivia.

frontalis (*Cab.*) ; agilis (*Cab. & Heine*).

olivinus (*Malh.*). One. ♀. Bolivia.

fidelis, *Harg.* ; spilogaster (*Wagl.*).

maculifrons (*Spix*). Four. 2 ♂ (1 jr.), 2 ♀.

cassini (*Malh.*). One. ♂.

ruficeps (*Spix*).

affinis (*Swains.*). Nine. 4 ♂ (1 jr.), 5 ♀. Brazil.

hæmatostigma (*Malh.*). One. ♂. Eastern Peru (Xeberos, June).

kirki (*Malh.*). Five. 1 ♂, 3 ♀. Tobago. Venezuela (Orinoco).

ceciliæ (*Malh.*). Three. 2 ♂, ♀. Chiriqui. Bogota.

MESOPICUS, *Malh.*

T goertan (*P. L. S. Müll.*). Seven. 5 ♂ (1 jr.), 2 ♀ (1 jr.). [Egypt]. Central Africa (Lado, June). West Africa (Gambia : Combo, May ; Bathurst, July ; Senegal).

> No. 6, ♂, from Senegal (= 3782 Ld. Derby's Mus.), is probably the Type of *Crimson-rumped Woodpecker*, Lath., Gen. Hist. iii. p. 364 (1822).

spodocephalus (*Bp.*).

griseocephalus (*Bodd.*). Seven. 3 ♂, 4 ♀. West Africa. South Africa (Natal ; Zululand, July ; Macamac, August).

pyrrhogaster (*Malh.*). Three. ♂, 2 ♀. West Africa (Gold Coast).

ellioti (*Cass.*).

johnstoni (*Shelley*) ; *Sjöstedt, Ornith. Monatsber.* i. p. 102 (1893).

> "Female hitherto unknown ; very closely resembling the male, but to be distinguished by having the pileum black and the sides of the head and neck paler. Total length, 170 mm. ; wing, 88 ; tail, 61 ; bill from gape, 18 ; tarsus, 18." (*Sjöstedt*). *Habitat.* Mannsspring, Cameroons, at 7,000 feet.

xantholophus, *Harg.*

XIPHIDIOPICUS, *Bp.*

percussus (*Temm.*). Three. ♂, 2 ♀. Cuba (Havana).

SAPHEOPIPO, *Harg.*

noguchii (*Seebh.*).

LEPOCESTES, *Cab. & Heine.*

pyrrhotis (*Hodgs.*). Two. 2 ♀. Northern India (Darjeeling, September).

sinensis, *Rickett. Bull. B.O.C.* xlv. p. l. (1897) ; *id. Ibis*, 1897, p. 452 ; Rickett and La Touche, *Ibis*, 1898, p. 333.

> "Male hardly adult. Like *L. pyrrhotis* (Hodgs.), but with the pileum pale fulvous brown not streaked with chestnut ; interscapulars black, crossed by narrow reddish fulvous bands ; wing and tail feathers pale chestnut, with equidistant black bands running across them. Total length, 11·2 inches ; culmen, 1·7 ; wing, 5·7 ; tail, 3·3 ; tarsus, 1·1. *Habitat.* Kuatun." (*Rickett*).

porphyromelas (*Boie*). Eight. 2 ♂, 4 ♀. Tenasserim (Bankasoon, May). Malacca. Sumatra. [Java].

MIGLYPTES, *Swains.*

tristis (*Horsf.*). One. ♂. ? Java.

grammithorax (*Malh.*). Twenty-one. 14 ♂, 5 ♀. Malay Peninsula (Malacca ; Pahang, January ; Singapore). Sumatra (Lampong Residency, Kotto Djawa). Borneo (Segilind R. ; Baram, May). [Java].

No. 16 ♂, from Sumatra (=3791 Lord Derby's Mus.) was collected by Sir Stamford Raffles.

tukki (*Less.*). Twenty-two. 6 ♂, 16 ♀. Malay Peninsula (Malacca ; Pahang, April ; Singapore). Sumatra (Lampong Residency, Tarratas). Borneo (Silam ; Banjermassim).

Dr. Buttikofer (Notes Leyd. Mus. xviii. pp. 168-169, 1896) has reunited with this species the bird from Nias, described by Count Salvadori (Ann. Mus. Civ. Gen. (2) iv. p. 531, 1887) as *M. infuscatus.*

jugularis, *Blyth.*

MICROPTERNUS, *Blyth.*

phœoceps, *Blyth.* Eight. 4 ♂, 4 ♀. Northern India. Burmah (Tenasserim, July ; Moulmein).

phœoceps, *subsp.* **brachyurus** (*Vieill.*) Ten. 5 ♂, 5 ♀. Malay Peninsula (Malacca). Sumatra (Lampong Residency : Gunung Tetahan ; Gunung Trang). Java.

gularis (*Jerd.*). Three. 2 ♂, ♀. Southern India (Belgaum, Nagargali, May). Ceylon.

badiosus (*Temm.*). Five. 2 ♂, 2 ♀. Borneo (Silam ; Baram, May ; Banjermassim).

fokiensis (*Swinh.*). Two. ♂, ♀. Eastern China (Ting Chow, October ; Fokien).

holroydi, *Swinh.*

BRACHYPTERNUS, *Strickl.*

aurantius (*Linn.*). Seventeen. 7 ♂ (1 jr.), 10 ♀. Northern India (Scinde, Narra, January ; Dehra Dhoon ; Darjeeling ; Bengal). Southern India (Nellore). Ceylon.

We have followed Dr. Blanford (Faun. Brit. Ind. Aves. Vol. iii. pp. 58-60, 1895) in including *B. puncticollis* (Malh.) from Southern India and Ceylon in this species. Mr. Hargitt has kept it distinct, but it would seem to us that the Scindian bird *B. dilutus*, Blyth, which he has included in *B. aurantius*, has at least an equal claim to specific value with *B. puncticollis.*

erythronotus (*Vieill.*). Four. 3 ♂, ♀. Ceylon (Veladoora, April).

TIGA, *Kaup.*

javanensis (*Ljung.*). Fifteen. 5 ♂, 10 ♀. Burmah (Moulmein). Malay Peninsula (Singapore). Borneo (Labuan ; Banjermassim). Java.

shorii (*Vig.*). Two. 2 ♂. Northern India (Sikkim Terai, February).

everetti, *Tweedd.* One. ♀. Philippine Islands (Culion, March).

NESOCELEUS, *Sclat. & Salv.*

fernandinæ (*Vig*).

CELEUS, *Boie.*

T flavescens (*Gm.*). Ten. 4 ♂ (1 jr.), 5 ♀. Brazil.

No. 6, ♂ jr., ex. Coll. Bullock, is possibly the Type of *Yellow-crested Woodpecker*, Lath., Gen. Syn. i. pt. 3 p. 589 (1782).

lugubris (*Malh.*). One. ♀. Bolivia.

kerri, *Harg. Ibis*, 1891, pp. 505-506; *Graham Kerr, op. cit.* 1892, pp. 136, 152, pl. iii.

"*Adult male*:—Resembles *C. lugubris*, but differs in having the upper part of the back, the scapulars, and the wing-coverts nearly black, with a brownish or slightly olivescent tinge, and the transverse markings narrower and fewer; the underparts blackish brown, nearly as dark as the back, and with less rufous on the under tail-coverts; the quills brownish black, and the exposed rufous bars on the secondaries very much narrower, being about one-fifth the width of the interspaces (the rufous bars in *C. lugubris* being about one-half the width of the darker interspaces). The wing, seen from below, is very different; the base of the inner webs of the primaries, and the barring on these as well as upon the inner webs of the secondaries (except close to the shaft), being white; the under wing-coverts and axillaries white, with scarcely any yellow tinge. The dimensions are also greater. Total length, 10·0 inches; culmen, 1·18; wing, 5·9; tail, 3·2; tarsus, 1·0; toes (without claws)—outer anterior, 0·9; outer posterior, 0·83; inner anterior, 0·62; inner posterior, 0·38.

"*Adult female*:—Differs from the adult male in the absence of red on the malar region, this being blackish brown, the feathers having buff margins. Total length, 10·0 inches; culmen, 1·12; wing, 5·7; tail, 3·3; tarsus, 1·02." (*Hargitt*). *Habitat.* Rio Pilcomayo.

ochraceus (*Spix*); immaculatus, *Berleps.*

elegans (*P. L. S. Müll.*). (= *C. jumana* (Spix.), Tristr., Cat. Coll. Birds, p. 105). One. ♀. South America.

reichenbachi (*Malh.*). Seven. 5 ♂, 2 ♀. Guiana.

jumana (*Spix*). One. ♂.

citreopygius, *Sclat. & Salv.*

rufus (*Gm.*). Five. 3 ♂, 2 ♀. British Guiana. Cayenne.

undatus (*Linn.*); loricatus, *Reichenb.*

castaneus (*Wagl.*). Three. 2 ♂, ♀. Central America (Celeman).

grammicus (*Malh.*). One. ♀. Upper Amazons.

spectabilis, *Sclat. & Salv.*

CERCHNEIPICUS, *Bp.*

torquatus (*Bodd.*). Three. ♂, ♀.

tinnunculus (*Wagl.*); occidentalis, *Harg.*

CROCOMORPHUS, *Harg.*

flavus (*P. L. S. Müll*). Six. 3 ♂ (2 jr.), 3 ♀. Demerara. Cayenne.

semicinnamomeus (*Reichenb.*).

CHRYSOCOLAPTES, *Blyth.*

festivus (*Bodd.*). Two. ♂, ♀. Southern India (Madras; Nellore).

strictus (*Horsf.*).

guttacristatus (*Tick.*). Eight. 3 ♂ (1 jr.), 5 ♀. India, Burmah. [Java].

erythrocephalus, *Sharpe.*

stricklandi (*Layard*). Two. ♂, ♀. Ceylon.

hæmatribon (*Wagl.*). Seven. 4 ♂ (1 jr.), 3 ♀. [China]. Philippine Islands (Luzon, Manilla).

lucidus (*Scop.*).

rufopunctatus, *Harg.* Two. ♂, ♀. Philippine Islands (Samar, June, July).

Messrs. Bourns & Worcester have shown (Occ. Pap. Minnes. Acad. i. p. 53, 1894) that *C samarensis*, Steere, List B. & Mamm. Philipp. p. 8 (1890), is identical with this species.

xanthocephalus, *Wald. & Layard.*

validus (*Temm.*). Seventeen. 9 ♂, 8 ♀. Malay Peninsula (Malacca). Sumatra (Lampong Residency: Gunung Trang; Penang-Gungan; Palembang Residency, Hoedjoeng Blalau, January). Java. Borneo (Riam Kiwa R.; Banjermassim).

CAMPOPHILUS, *G.R.Gr.*

principalis (*Linn.*). Seven. 3 ♂, 4 ♀. Southern United States (Louisiana; Texas).

bairdi, *Cass.*

T **imperialis** (*Gould*). Two. ♂, ♀. Mexico.

Co-types of the species.

leucopogon (*Valenc.*). Three. 2 ♂, ♀. Bolivia.

rubricollis (*Bodd.*). (= *Campephilus trachelopyrus*, Malh., Tristr. Cat. Coll. Birds, p. 102). Six. 3 ♂, 3 ♀. Guiana. Ecuador.

trachelopyrus (*Malh.*). One. ♂. Bolivia.

melanoleucus (*Gm.*). Six. ♂, 5 ♀. Brazil (Para). Ecuador (Sarayacu). Bolivia.

malherbii, *G.R.Gr.* Six. 2 ♂, 4 ♀. U.S. Colombia (Bogota). Brazil (Rio Huallago).

guatemalensis (*Hartl.*). Six. 4 ♂, 2 ♀. Southern Mexico (Tamaulipas). Honduras (Omoa). Vera Paz (Coban, February).

guayaquilensis (*Less.*).

pollens (*Bp.*). Seven. 3 ♂, 3 ♀. New Grenada. Ecuador.

robustus (*Licht.*). Two. 2 ♂. Brazil.

hæmatogaster (*Tschudi*); splendens, *Harg.*

IPOCRANTOR, *Cab. & Heine.*

magellanicus (*King*). Seven. 3 ♂, 4 ♀. Chili. Patagonia (Straits of Magellan).

HEMICERCUS, *Swains.*

concretus (*Temm.*). One. ♂ jr. Java.

sordidus (*Eyton*). Eleven. 7 ♂ (5 jr), 4 ♀ (1 jr.). Malay Peninsula (Pahang, January; Malacca; Singapore). Borneo (Banjermassim; Segilind R.).

No. 3 (=3809 Lord Derby's Mus.), a young male from Singapore, has the buff markings on the upper surface much more pronounced than in other specimens.

canente (*Less.*). Five. 3 ♂, 2 ♀. Tenasserim. Pegu.

Dr. Blanford states (Faun. Brit. Ind. Aves. iii. p. 70, 1895) that there are no characters by which the South Indian form *H. cordatus*, Jerd. can be constantly distinguished from this species.

MICROSTICTUS, *Harg.*

fulvus (*Q. & G.*).

wallacii (*Tweedd.*). (= *Alophonerpes fulvus* (Q. & G.), Tristr., Cat. Coll. Birds, p. 102). One. ♀. South Celebes (Macassar).

fuliginosus (*Tweedd.*).

funebris (*Valenc.*). Five. 2 ♂, 3 ♀. Philippine Islands (Luzon: Manilla; Cataguan). [China].

The specimen labelled "China" was acquired from Mr. Fortune. It has been shown, however, that he sent home many birds from Luzon among his Chinese collections. There are many such in the Derby Museum.

HEMILOPHUS, *Swains.*

pulverulentus (*Temm.*). Five. 2 ♂, 3 ♀. Borneo (Banjermassim). Java.

THRIPONAX, *Cab. & Heine.*

javensis (*Horsf.*). Eight. 5 ♂, 3 ♀. Malay Peninsula (Malacca). Sumatra (Lampong Residency : Gunung Trang). Borneo (Silam).

javensis, *subsp.* **suluensis,** *W. Blas. J.f.O.* 1890 p. 140.
Six. 3 ♂, 3 ♀. Sulu Archipelago (Bongao Island, July). Philippine Islands (Luzon ; Basilan, May ; Surigao, May).

"Differs from the typical form principally in the smaller proportions of the bills and wings. In the typical form the dimensions are : Bill, 5·33 cm. ; wing, 22·1 ;—in the subspecies, five individuals measure—total length, 34-35 ; wing, 18·8-19·5 ; tail, 15·9-16·8 ; culmen, 4·1-4·5 ; tarsus, 3·1-3·25 cm." (*Blasius*). *Habitat.* Sulu Archipelago and Philippines.

Dr. Sharpe states (Ibis, 1894, p. 249), on the authority of Mr. Hargitt, that the Sulu birds are inseparable from the Typical form. In our series the specimens from the Philippines and Sulu Islands agree with one another, and differ from Malaccan, Bornean, and Sumatran examples in having the wing and beak considerably shorter, as Dr. Blasius states in his description. Mr. Hartert writes us that this is also the case with the series at Tring.

pectoralis, *Tweedd.* ; crawfurdi (*G.R.Gr.*)

hodgii (*Blyth*). Two. ♂, ♀. South Andaman Islands, March.

hodgsoni (*Jerd.*).

feddeni (*Blanf.*). One. ♀. Pegu.

hargitti, *Sharpe.* One. ♂. Philippine Islands (Negros, March).

To the synonymy of this species must be added *Thriponax philippinensis*, *Steere, List B. & Mamm. Philipp.* p. 8 (1890) ; *id. Ibis*, 1891, p. 305 ; *Bourns & Worces. Occ. Pap. Minnes. Acad.* p. 36, no. 437 (1894) ; *iid. t.c.* p. 53 ; *Grant, Ibis*, 1896, pp. 473-474 ; *id. t.c.* p. 558.

mindorensis, *Steere, List B. and Mamm. Philipp. p.* 8 (1890) ; *id. Ibis*, 1891 pp. 305, 306 ; *Hartert, J.f.O.* 1891, p. 295 ; *id. Nov. Zool.* ii. p. 487 (1895) ; *Grant, Ibis*, 1896, pp. 473, 474.

"*Adult male* :—Much smaller than *T. philippinenis.* Rump white. Much white upon ear coverts and throat. Scarlet cheek patch limited to a narrow bar upon the lower jaw. Bases of the feathers of the forehead, as well as of the crest, white. White spot at bases of first and second primaries." (*Steere, Ibis*, 1891, p. 305). *Habitat.* Mindoro.

T **richardsi** (*Tristr.*). One. ♀. Tsu-sima Island.

Type of the species, P.Z.S., 1879, p. 386 pl. xxxi.

Mr. Seebohm states (Ibis, 1892, pp. 248-250) that *T. kalinowskii*, Tacz., from Corea, which Mr Hargitt has recognised as distinct, is identical with this species.

CEOPHLŒUS, *Cab. & Heine.*

lineatus (*Linn.*). (=*Campephilus malherbii*, Gr. Tristr. Cat. Coll. Birds, p. 102). Seven. 4 ♂ (1 jr.), 3 ♀. Brazil (Para). Ecuador (Sarayacu). Bolivia.

scapularis (*Vig.*). Seven. 5 ♂, 2 ♀. Central America (Vera Paz, Cajabon, January ; Honduras).

fuscipennis (*Sclat.*) ; erythrops (*Valenc.*) ; galeatus (*Temm.*).

DRYOTOMUS, *Swains.*

pileatus (*Linn.*). Ten. 6 ♂, 4 ♀ (1 jr.). Vancouver Island. United States (Illinois ; Kentucky, Lexington ; Georgia ; Texas).

schulzi (*Cab.*).

PICUS, *Linn.*

martius, *Linn.* Six. 2 ♂, 4 ♀. Scandinavia.

PICUMNINÆ.

PICUMNUS, *Temm.*

rufiventris (*Bp.*). One. ♂. Peru (Sarayacu).

cinnamomeus, *Wagl.*

castelnaui, *Malh.* Two. 2 ♀. Ecuador (Caly).

These specimens were collected by De Lattre.

leucogaster, *Pelz.*; fuscus, *Pelz.*

temmincki, *Lafr.* Two. ♂, ♀. South America.

cirrhatus, *Temm.* Four. ♂, 3 ♀. [Guiana]. Paraguay.

spilogaster, *Sundev.*

pilcomayensis, *Harg. Ibis.*, 1891. pp. 606-607.

> "*Adult male*:—This species is intermediate between *P. cirrhatus* and *P. orbignyanus*, possessing some of the characters of each. It differs from *P. cirrhatus* in wanting the brown auricular spot, and in having the back and scapulars of a greyer or more dusky brownish (not olivescent brown), crossed by smoky-white bars (*P. cirrhatus* has sometimes transverse bars, but they are of a different colour); the flanks and thighs without any buff tinge. The present species differs from *P. orbignyanus* in being clearly barred with black upon the whole of the under parts, the upper parts being barred, more or less distinctly, with smoky or brownish white (not spotted). Total length, 3·5 inches; culmen, 0·42; wing, 2·0; tail, 1·25; tarsus, 0·5; toes (without claws)—outer anterior, 0·33; outer posterior, 0·33; inner anterior, 0·25; inner posterior, 0·2.

> "*Adult female*:—Differs from adult male in wanting the red on the sincipital feathers, these being black, with rounded spots of white, as upon the posterior part of the crown and the occiput. Total length, 3·3 inches; culmen, 0·4; wing, 2·0; tail, 1·25; tarsus, 0·5." (*Hargitt*). *Habitat.* Pilcomayo R.

d'orbignyanus, *Lafr.*; sclateri, *Tacz.*; sagittatus, *Sundev.*; steindachneri, *Tacz.*

jelskii, *Tacz.*; nebulosus, *Sundev.*

pygmæus (*Licht.*). Six. 4 ♂, ♀ jr. Brazil.

asterias, *Sundev.*; guttifer, *Sundev.*

albosquamatus, *Lafr.* One. ♂. Bolivia.

lepidotus, *Cab. & Heine.*

squamulatus, *Lafr.* Seven. 5 ♂, 2 ♀. New Grenada (Bogota, Anolaima).

iheringi, *Berlepsch.*

minutus (*Linn.*). Two. 2 ♂. Brazil.

undulatus, *Harg.* One. ♀. British Guiana (Roraima).

salvini, *Harg. Bull. B.O.C.* xi. p. iii. (1893); *id. Ibis*, 1894 pp. 117, 118.

> "Similar to *P. undulatus*, from Guiana, but with the feathers of the belly with a median spot of black with a border of fuscous; feathers of the throat tipped with black, *but without the black median spot*." (*Hargitt*). *Habitat.* Unknown.

buffoni, *Lafr.* Five. 5 ♀ (1 jr.). Cayenne.

punctifrons, *Tacz.*

lafresnayii, *Malh.* One. ♀. Peru.

aurifrons, *Pelz.*; borbæ, *Pelz.*; flavifrons, *Harg*; wallacii, *Harg.*

olivaceus, *Lafr.* Eight. 2 ♂, 6 ♀. New Grenada (Bogota).

olivaceus, *subsp.* granadensis, *Lafr.*

obsoletus, *Allen. Bull. Amer. Mus. Nat. Hist.* iv. pp. 55, 56 (1892).

> "*Ad.* ♂:—Above yellowish olive-brown, with faint subapical very narrow dark brown bars; wing-coverts olive brown, lighter yellowish apically, and narrowly tipped with blackish; quills dark brown, the secondaries broadly edged externally with light greenish yellow; nasal plumes soiled white, tipped with black; whole surface of head black, the crown spotted with orange red, and the occiput with minute-rounded spots of white, extending forward on sides to eyes; below yellowish, lighter and more whitish on the throat, each feather edged apically with a very narrow bar of black, nearly obsolete except on the breast; under wing-coverts strongly buffy white. Length (skin), 3·35 in.; wing, 1·95; tail, 1·05; culmen, ·46; tarsus, ·50." (*Allen*). *Habitat.* El Pinar, Venezuela.

innominatus, *Burton.* Five. 4 ♂, ♀. Sikkim. Northern India (Darjeeling).

chinensis (*Harg.*).

NESOCTITES, *Harg.*

micromegas (*Sundev.*). One. ♀. San Domingo.

VERREAUXIA, *Hartl.*

africana (*Verr.*).

Blax gymnophthalmus, Reichenow, Ornith. Monatsber. ii. p. 126 (1894); id. J.f.O. 1896, p. 13 Tafl. iii., described as a new genus and species of Barbet, should, as it turns out, be referred to this rare species.

SASIA, *Hodgs.*

ochracea, *Hodgs.* Five. 2 ♂, 2 ♀. Sikkim. Nepaul. Northern India (Darjeeling).

abnormis (*Temm.*). Nine. 2 ♂ (1 jr.), 2 ♀. Malay Peninsula (Pahang, January, March). Borneo (Kahayan, August; Trusan, March).

everetti, *Harg.*

IYNGINÆ.

IYNX, *Linn.*

torquilla, *Linn.* Twenty. 3 ♂, 2 ♀. England (Cambridge, May; Middlesex: Kingsbury, July; Pegham, July). Algiers, February and April. Egypt. Palestine (Galilee, Wady el Becila, April; Lebanon, Anata, May; Mt. Tabor, April). Northern India (Etawah; Bengal). Southern India (Nellore). China (Amoy, January). Japan (Kobé February).

pectoralis, *Vig.* Seven. 2 ♂, 2 ♀. South Africa (Natal, Pinetown; Transvaal, Rustenberg, July). East Africa ([Mombasa] ? Umlass R. Natal).

The last-mentioned specimen was collected by Gordge, and the locality given by Tristram (Cat. Coll. Birds, p. 100), is open to doubt. Mr. Hargitt states (Cat. Birds Brit. Mus. xviii., p. 566, note) that he is not aware that Gordge ever collected at Mombasa. The true locality is very probably either Zululand or Natal.

pulchricollis, *Hartl.*; æquatorialis, *Rüpp.*

INDICATORIDÆ.

INDICATOR, *Vieill.*

xanthonotus, *Blyth*; archipelagicus, *Temm.*

indicator (*Gm.*). Eleven. 9 ♂, 2 ♀. West Africa (Sierra Leone). South Africa (Port Natal, July; Transvaal, Rustenberg, June).

major, *Steph.* Nine. 5 ♂ (1 jr.), 4 ♀. South Africa (Transvaal: Rustenberg, November; Silati Flats, March).

variegatus, *Less.* Three. Africa.

variegatus, *subsp.* stictithorax, *Rchnw.*

maculatus, *G.R.Gr.*

minor, *Steph.* Five. Central Africa (Zambesi). South Africa (Natal).

pygmæus, *Rchnw. J.f.O.* 1892, p. 24; *Shelley, B.Afr.* i. p. 125 (1896).

Indicator minor, *Emin, J.f.O.* 1891, p. 345.

"*Female*:—Closely resembling *I. minor*, but much smaller; head and belly, together with the under tail-coverts, greenish grey; feathers of the back, upper tail-coverts, and wing-coverts brownish black in the middle, broadly bordered with olive yellow. Iris dull brown; bill fuscous paler at the bases of the mandible; feet lead colour, with an olive tinge. Total length, 140; wing, 80; tail, 53; bill, 9; tarsus, 13 mm." (*Reichenow*). *Habitat.* Victoria Nyanza (Bukoba).

conirostris (*Cass.*); exilis (*Cass.*).

PRODOTISCUS, *Sundev.*

regulus, *Sundev.* One. South Africa (Natal).

insignis (*Cass.*).

zambesiæ, *Shelley, Ibis*, 1894, p. 8; *id. B.Afr.* i. p. 125 (1896).

"Similar to *P. insignis*, but differing in having the sides of the face and throat pale ashy, and the abdomen, flanks, and under tail-coverts white. Total length, 5; wing, 2·8 inches." (*Shelley*). *Habitat.* Nyassaland (Zomba).

Since this Catalogue was in the press, the following two subspecies have been described:—

COLAPTES.

See Page 99.

auratus, *subsp.* **luteus**, *Bangs, Auk.* xv. p. 177 (1898).

"Size larger than *C. auratus auratus;* bill proportionally shorter, straighter, less curved. Colours much paler throughout; the brown of the back and the gray of top of head several shades lighter; black bands on back narrower and less conspicuous; under parts more washed with yellow—much less black and white; shafts, etc., a much brighter yellow." (*Bangs*). *Habitat.* Eastern North America.

In our series of sixteen examples of *C. auratus*, we can distinguish no differences either in size or colouration, sufficient to separate a specimen from Georgia from others from Canada and the Assiniboina River, though in the absence of a larger series from the southern United States, it is impossible to state definitely that the subspecies is invalid.

DRYOTOMUS.

See Page 115.

pileatus, *subsp.* **abieticola** (*Bangs*), *Auk.* xv. p. 176 (1898).

"Much larger than *Ceophlœus pileatus pileatus;* bill longer, of about the same breadth; tarsus longer; all the white markings more extensive; black colour less sooty, more brownish or grayish black, feathers of sides more extensively tipped and barred with white." (*Bangs*). *Habitat.* Eastern North America.

In the case of *D. pileatus*, we can distinguish no differences whatever as regards colouration, in our series from the United States, but the dimensions of the bills seem somewhat variable, the culminal ridge of a specimen from Illinois measures 58 mm., while that of a Georgian example is only 46 mm. The Vancouver Island specimen differs notably in showing no white whatever on the external aspect of the wing, whereas in all the other examples the primary coverts are tipped with white, and the white basal portion of the quills extends beyond the primary coverts, forming a white bar on the wing; in the Vancouver Island specimen, the white is much more restricted, so as to be invisible externally, and much less marked on the inside of the wing.

The Pici are, therefore, represented in the Museum by 81 out of the 91 characterised genera; and by 1871 Specimens belonging to 404 out of the 670 described species. The number of species represented by their Types is 17, besides 13 relegated to the synonymy. (October, 1898.)

On a fragment of the Parcival of Wolfram von Eschenbach in the Mayer Museum.

BY R. PRIEBSCH, PH.D.,

Lecturer on the English Language in University College, Liverpool.

(PLATES A—D).

THROUGH the kindness of the Director of Museums I was enabled some little time ago to examine the MSS. preserved in the Mayer Collection of the Public Museums. The first results of this investigation are now presented to the readers of the *Bulletin* in the accompanying photographic reproductions of four pages of a very interesting fragment. They are fac-similes of 271 verses from the Old German—*Hohes Lied des Rittertums*—the beautiful *Parcival* poem of Wolfram von Eschenbach.[*]

Though there are a good many MSS. of the immortal poem preserved on the Continent, yet, so far as I know, the Liverpool fragment is the only portion of it preserved in any English library or museum. These pages now form the front and back fly-leaves[†] of a Latin Psalter in the Mayer Museum, marked $\frac{12004}{\text{M}}$[‡], and must be regarded as the sorry remains of a fine quarto MS. of the *Parcival* cut ruthlessly into pieces by the monks to whose monastery the Latin book belonged, and perhaps at the time when they gave to the Psalter its present binding.

There is no entry, however, in the Psalter to tell us either the name or the place of the monastery, but as the language of our fragment clearly betrays Suabian influence, and as, moreover, the last page of the Psalter (folio 145$^{\text{v}}$) is covered with German writing in the same dialect,[§] I have little doubt that it was in that part of Germany that its walls stood, or, maybe, still stand.

When and under what circumstances the MS. came to England, and into Mr. Mayer's possession, it is, unfortunately, impossible now to say; there being neither a book-plate nor a written entry in the Codex, to afford us a clue, and Mr. Mayer, so far as I am aware, left no notes which might elucidate these questions.

Our two leaves, cut on the upper and outer margins to fit the size of the Psalter, measure at present—Folio I., $9\frac{8}{10} \times 6\frac{6}{10}$ inches; folio II., $9\frac{8}{10} \times 6\frac{7}{10}$ inches. Each page, as will be seen from the plates, contains two columns, and each column 34 verses (written upon and between the lines), with the exception of folio II.$^{\text{v}}$, col. 2, which, as the first line has not been filled in, contains only 33 verses. Very likely this blank line was reserved for some heading—bvch XVI., perhaps; for with the next line actually opens a new book.[||] There are alternately red and blue initials, with blue and red flourishes, to mark the beginning of each new paragraph.

The clear and elegant handwriting I am, for palæographical reasons, inclined to place in the last quarter of the thirteenth century. Folio I.$^{\text{v}}$ and II.$^{\text{r}}$ are excellently preserved, but I.$^{\text{r}}$ and II.$^{\text{v}}$ have suffered somewhat in consequence of having been pasted against the inside of the book-cover. On the upper margin of folio II.$^{\text{r}}$, a hand of the sixteenth century has scribbled: *melchior erp* (the name, perhaps, of a former possessor), and *schraip sup* (?)

---

[*] *Cf.*, among other works, A History of German Literature. By W. Scherer. Edited by Max Müller. Oxford, 1886. Vol. 1, p. 161.

[†] These pages have now been carefully removed from the Psalter, and preserved separately under the Catalogue number $\frac{895}{\text{M}}$.

[‡] *Cf.* Appendix, p. 121.

[§] *Cf.* Appendix, p. 121.

[||] The *Parcival* is divided into sixteen books.

schrai (lege *schraip*); there are also a few "pen-trials" on the lower margin of the same page.

The verses in the Mayer Fragment, which I shall designate M, belong to the fifteenth and sixteenth book of the *Parcival*.[*] Compared with Lachmann's critical edition of the poem, our folio I. answers to his § 770 l. 3 to § 774 l. 8; our folio II. to his § 783 l. 19—§ 788 l. 3. Between folios I. and II. there is a gap of 270 verses, that is to say, the approximate number of lines which a double leaf of our so badly used MS. of the *Parcival* would have contained. It seems, therefore, very probable to my mind that the Mayer Fragment once formed the immediately preceding double-leaf of the same quire.

Lachmann, in his edition of the *Parcival*, arranges all the MSS. of the poem in two classes, under the designations, D and G. Of class G, many examples (both complete MSS. and fragments) are extant; of class D, upon which he has based his edition, the number is few—the principal being a fine Codex in the library at St. Gall (D). It is the more gratifying, therefore, to find that M (the Mayer Fragment) undoubtedly belongs to D.

This point can be proved, first, by the presence of the verses in M folio I.^{r}, col. 1, ll. 3-28 (= Lachmann § 770, ll. 5-30), which are altogether wanting in the G class. Secondly, by the fact that wherever important differences exist in the readings, between the two chief classes, M follows D.[†] It should, however, be pointed out that M is by no means a mere copy of the St. Gall MS.; on the contrary, it shares some characteristic readings with Lachmann's *d*, (Heidelberg MS. No. 339; an early printed copy of the year 1477; and other fragments), which, from the early date of our Fragment, should not be without weight in criticising the text. I have noted the following passages:—§770, 8, 19; 771, 30; 772, 26, 28; 773, 27, 28; 783, 28; 784, 2; 786, 7, 24; 787, 19.

With the printed copy of the year 1477—and with this only—M has in common the reading of verses § 771, 10, 11—our folio I.^{r}, col. 2, lines 3-4 :—

"ich vurte harte creftic her
von minen landen vfez mer"

§ 785, 5, 14—our folio II.^{r}, col. 2, l. 22 :—

"nere artus ich will biten dich."

§ 785, 5,—our folio II.^{r}, col. 2, l. 13 :—

"helfet mir ir vnd min neve Gawan."

§ 785, 17,—our folio II.^{r}, col. 2, l. 25 :—

"vnd wis des lasters vur mich pfant."

§ 786, 9—our folio II.^{v}, col. 1, l. 13 :—

"daz kein strit in mohte erwerben."

Lastly, in a few passages M agrees with G also.[‡] The same is the case with the "Köpke's Fragments" (Lachmann, Preface, p. xix.), which otherwise belong also to D.

The scribe of the Mayer Fragment has not steered entirely free from mistakes, for as such must be regarded *ercves*. in folio I.^{r}, col. 2, line 8, for *ercules*; and in line 13, *wit* for *wis*; *hant*, in folio II.^{v}, col. 1, line 28, for *lant*.

---

[*] To any reader, unacquainted with the language of the original, I may heartily recommend the spirited translation of Wolfram's poem into English verse by Miss J. Weston, 2 vols., 1894. London: D. Nutt. The Mayer Fragment will be found in vol. 2, p. 153, from line 584 to line 656 on p. 156, and from line 807 on p. 160 to line 17 on p. 165.

[†] The following characteristic passages in Lachmann's edition should be compared here:—§ 771, 3; 773, 26; 784, 10; 785, 4, 7, 15, 18, 26; 786, 7, 22, 30; 787, 2, 30.

[‡] *Cf.* 783, 20, 24; 784, 20, 23; 786, 10.

I am not quite sure whether the *von*, on folio II.^{v}, col. 2, line 8, in place of *vn* (=und) of all the other MSS., is only a slip of the copyist; for if we insert a period after the preceding word *Gral*, and delete the one after *craft* (which occurs in all the editions), we get not only excellent, but, in my opinion, really far better sense. On folio I.^{r}, col. 1, l. 16, he inserts, against all the other MSS., *carrb*, and writes, in l. 18, *tiliraster* for *Thilêr*, and, in l. 26, *ietracranc* for *Jetakranc*. That the scribe hailed from Suabia is betrayed by his use of *ie* for *e* in *phliegt* in folio II^{v}., col. 2, line 10 (*cf.* Weinhold, Aleman. Grammatic, § 64); *e* for *ei* and *ie*, as in *urtellichem*, in folio II.^{v}, col. 2, line 32; *denst*, in folio I.^{v}, col. 2, line 22—*cf.* § 36 f; by *ivch* for *iv* as the dative plural—§ 453; by *iv* as the ending of the accusative feminine, as *disiv zit*, in folio II.^{r}, col. 1, line 26—§ 423.

It remains now for me only to express my sincere thanks to the Director of Museums for the opportunity of describing this Fragment. May every custodian, or fortunate possessor of ancient MSS., show the same kindness to the toiler in that branch of science! it would then be easier for him to gather together all the stones for that lofty edifice—the history of the thoughts and the life of our forefathers.

APPENDIX.

The volume marked $\genfrac{}{}{0pt}{}{12004}{\text{M}}$ in the Mayer Museum is a Parchment Codex in quarto of 145 leaves, (the pages numbered in pencil by a modern hand), and a flyleaf in front and back. The writing is that of a clear German hand of the twelfth century. The quires consist mostly of 8 leaves. There are, however, 1 of 1, 2 of 2, 2 of 6 leaves. The MS. is bound in green calf skin, and has two well-preserved clasps in the form of doves.

The Latin Psalter commences with the 1st Psalm, "*Beatus vir qui non abiit*," &c., on folio 12^{r}, and has a richly coloured initial letter with a representation of David playing the harp, with an angel overhead. It ends on folio 129^{r} with the CL. Psalm—*Omnis spiritus laudet dominũ*; the same modern hand has marked in pencil, the beginning of the Psalms—Ps. 1, 2, &c.—and on folio 129^{r} has written, "End of Psalter." The Psalter is followed by Collects and a commemoration of S. Katherine, who is styled "the Jewel of Greece, from the city of Alexandria." After this, other Canticles—the "*Benedicite*," "*Pater noster*," "*Credo*," "*Quicunque vult*"; on folio 141^{r}, is the Litany of the Saints, and again prayers to the end of the volume. There are other initials, in the same style as the first, on folios 29, 50, 90, 114, 129, and also numerous smaller ones on all the pages, besides drawings of grotesque heads and figures of animals and plants between the lines or on the margin of the folios from the 12th to 56th.

The Psalter is preceded by a Latin calendar, on folios 1 to 6, with round arches and columns, gilt, and illustrated with vignettes of the signs of the Zodiac, and allegorical drawings of occupations for each month, "such as tree-felling for January, ploughing in February, brewing in September; October is set apart for being ill in bed, November for pig-killing, and in December a man is seated before a fire warming his toes" (Catalogue of Mediæval and Latin Antiquities contained in the Mayer Museum, &c. By C. T. Gatty). These are followed, on folios 7 to 11, by full page panels, each divided into two, drawn and illuminated in an unusually spirited style, and illustrating the chief events of Christ's life, from his childhood to his coming on the Day of Judgment. To complete the description of this MS., I may add that on folio 145^{v} (the last page of the Psalter), there is found some German writing in a hand of the fourteenth century, and in the Suabian dialect, which sets out what is portended by a person being born on a Sunday, Monday, &c.

It runs thus:—

Wer an aim sunñtac wiert gv̍born der wiert st[arc]* vñ schen.	He who is born on a Sunday will become strong and beautiful.
Der an aim maentag wiert gv̍born der wiert stark.	He who is born on a Monday will become strong.
Der an aī zistag wiert gv̍born der wiert stark vñ gv̍erig ze fechtent.	He who is born on a Tuesday will become strong and eager for combat.
Der an ai mithun wiert gv̍born der wiert richder des rieches.	He who is born on a Wednesday will become judge of the empire.
Der an ai dunstag wiert gv̍born der wiert erbar.	He who is born on a Thursday will become an honest man.
Der an ai fritag wiert gv̍born der wiert lebilich.	He who is born on a Friday will have long life.
Der an aī samstag wiert gv̍born der wiert vnlebich.	He who is born on a Saturday will not live long.

Then follows what apparently is an extract from a Book of Dreams :—

'Dem in sinem sclaf ist, wie er die fogel vō im sech fliegen daz bizechet zorn.	Anger is signified if, in sleep, birds are seen to fly from one.
Der die fogel ī dē sclaf fahet, daz bizechet glvͤk vn̄ heil.	Happiness and prosperity are portended to him who, in his sleep, catches birds.
Schaf vn̄ kizu (!) diz ist trost.	Consolation is signified by sheep and kids.
Wapen tragen daz sint ere.	The carrying of weapons means honour.
Wafen ferliesen ald brechen daz ist schad.	The losing or breaking of weapons portends loss.
Bovm mit frucht daz sint gvͤwīne.	By trees laden with fruit signifies gain.
Bevm vfgan daz ist gvͦt.	It is fortunate to dream of climbing a tree.
Nasses wet^{s} daz ist ain zersterūg.	Wet weather signifies disturbance.
Ain trvͦbes wet^{s} daz ist bitterung.	Dull weather betokens bitterness.
Dem ist wie es von tiern bistāden si, daz ist daz es vō sinē vīdē vͤbirwn̄den werdē w^{l}.	Overthrow by one's enemies is signified by dreaming of being surrounded by animals.
Ainen wagen sehen lofen daz ist krieg mit sinim frūd.	A carriage in motion betokens quarrels with one's friend.
Fingirln ald fvͤrspangen ald[†] fvͤrliesen daz ist grose smerze.	Losing one's rings or brooches portends great trouble.
Zvͦ opher gan ald ophrun daz ist grosu frved.	The going to Mass or celebrating Mass signifies great joy.
Figirln ald fvͤrspan trag[en] daz ist arbeit.	The wearing of rings or brooches betokens work.
Groz arm daz ist gvͤwalt.	Dreaming of a strong arm means power.
Klain arm daz ist trvnkait.	Dreaming of a small arm signifies drunkenness.
Ain cron enphaen daz ist er.	Receiving a crown portends honour.
Dem ist wie es plint si daz ist daz der mensch in svnd vallen wil.	The man who dreams that he is blind will fall into sin.
Dē ist wie er nit mvͤg lofen daz bizehet siechtag.	Sickness is portended by dreaming one cannot walk.
Dem ist wie er mit totun redi daz ist daz dem gvͦt zehāden wil gan.	Prosperity will come to him who dreams of talking with the dead.
Dem ist wie es tod si dē wil grose schad zvͦgan.	He who dreams that he is dead will come to great harm.
Dem ist wie er bischoren si daz ist daz er wil bitrogen werden.	He who dreams of having been shorn will be deceived.
Dem ist wie er hohzit sech daz bizehet wainūg.	Dreaming of a wedding betokens tears.
Dem ist wie er mit dem kvͤnge redi daz ist daz im er v̄n wierdi wil zvͦgan.	Honour and dignity will come to him who dreams that he speaks with the king.
Dem ist wie er ain wisses hobt hei daz ist gvͤwin.	To dream of having grey hair means gain.
Dem ist wie er lāges har hei daz ist sterki.	To dream of having long hair betokens strength.
Dem ist wie er nvͤts gvͤschvͤesz trag daz ist fr[id] (?) cu[m]pt.	The approach of peace is portended by dreaming one carries a useful (loaded?) gun.
Dem is wie im daz hobt gvͤwaischen si daz er lest wil werden vō allen arbaiten.	To dream of having one's head washed signifies release from all work.
Dem ist wie im die zen vsfalleīt (!) daz ist daz im ain naher frvͤnd sterben wil.	To dream that one's teeth have fallen out means that a near friend will die.
Dem ist wie er sin hus buii daz ist daz er gvͤtrevst wil werden.	To dream that one builds a house signifies consolation.
Dem ist wie er sin hus sech brinnen daz bizehot vnglvͤk.	Misfortune is signified by dreaming one's house is on fire.
Dem ist wie er col nem da (!) bvͤzehet gros frvͤd en (!) goz (!) namen.	Great joy and a great name are signified by dreaming that one picks up a cabbage.
AMEN.	AMEN.

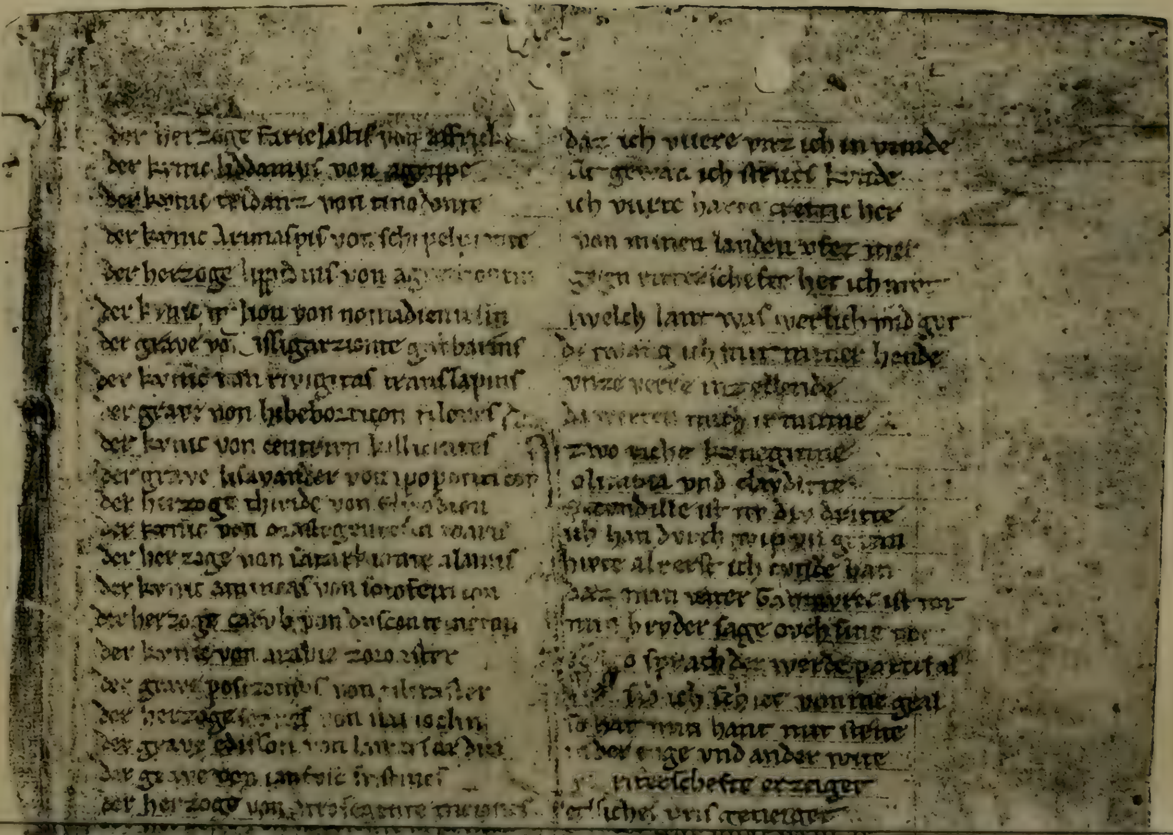
---

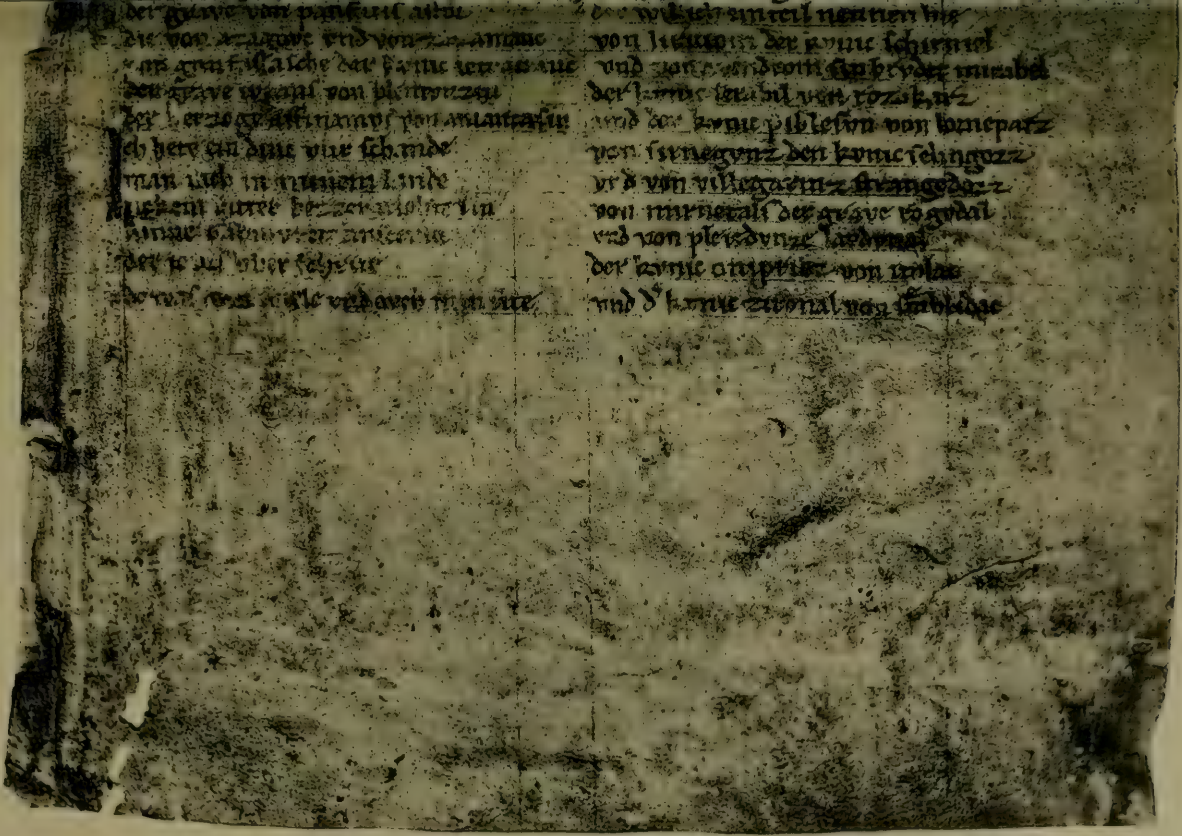
* Letters in brackets [ ] have been added by me.—R. P.

[†] A verb wanting before *ald?*

BRITISH MUSEUM NATURAL HISTORY

A

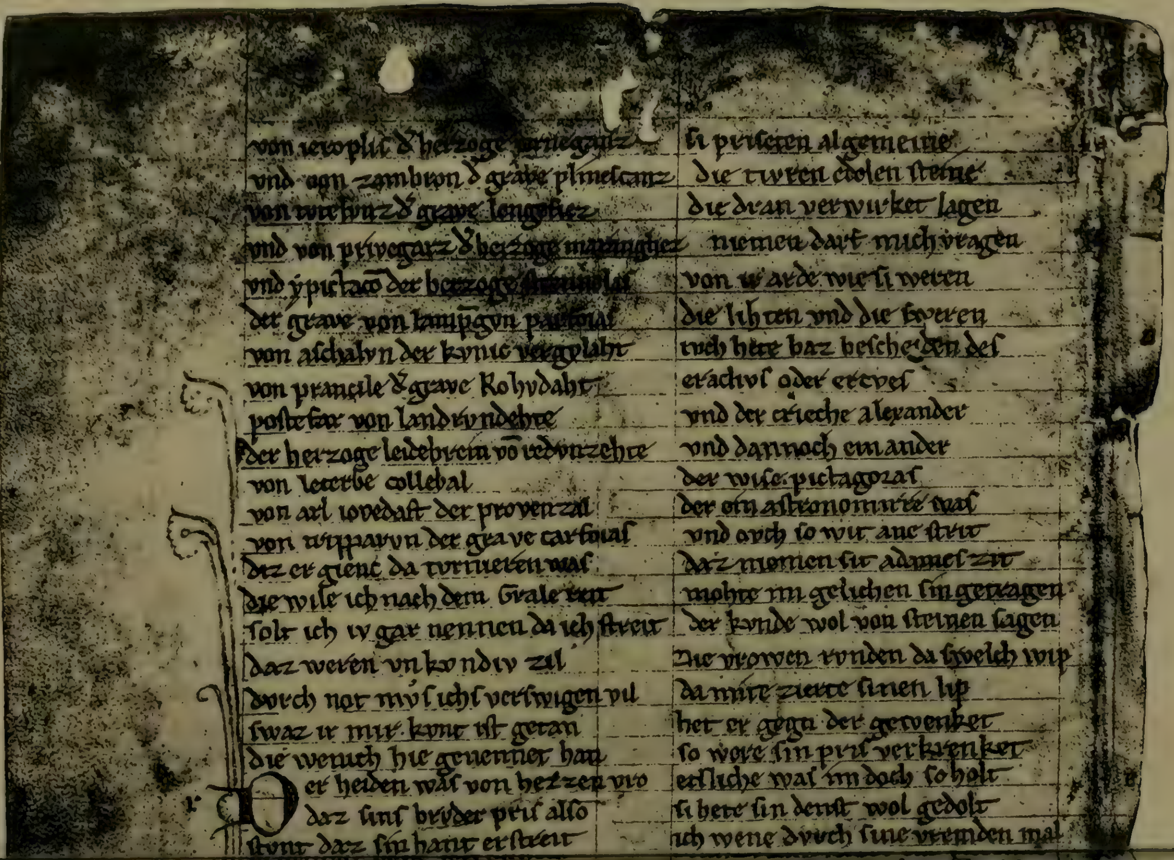




FRAGMENT OF THE "PARCIVAL": FOLIO I^R.

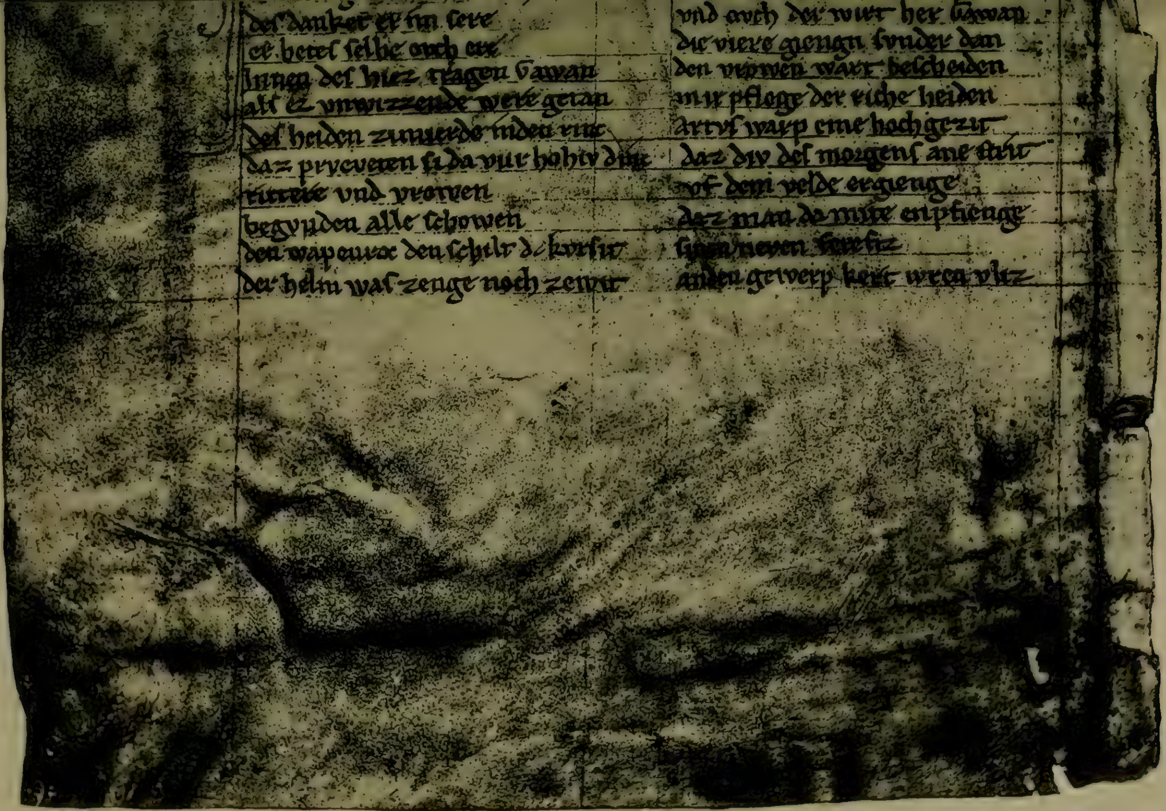
BRITISH MUSEUM

B



von ierwplit d' herzoge [illegible]
vnd von zambron d' grave plineſcanz
von tretſvriz d' grave lengeſiez
vnd von privegarz d' herzoge marangliez
vnd ypictaō der herzoge [illegible]
der grave von lampgon paſſimal
von aſchalvn der kvnic vergvlaht
von prancile d' grave Rohvdaht
poſteſar von landrvndehte
der herzoge leidebrien vō redvnzehte
von leterbe collebal
von arl iovedaſt der provenzal
von uippavn der grave carfonaſ
daz er gient da tvrnieren waſ
die wile ich nach dem Grale reit
ſolt ich iv gar nennen da ich ſtreit
daz weren vn kvndiv zil
dvrch not mv́ſ ichſ verſwigen vil
ſwaz ir mir kvnt iſt getan
die wenich hie genennet han
Der heiden waſ von herzen vro
daz ſins brvder pris alſo
ſtvnt daz ſin hant erſtreit

ſi priſeten algemeine
die tivren edelen ſteine
die dran verwirket lagen
niemen darf mich vragen
von ir arde wie ſi weren
die lihten vnd die ſweren
mich here baz beſcheiden des
erachvs oder ercvles
vnd der crieche alexander
vnd dannoch ein ander
der wiſe pictagoraſ
der ein aſtronomiere waſ
vnd ovch ſo wiſ ane ſtrit
daz niemen ſit adames zit
mohte im gelichen ſin getragen
der kvnde wol von ſteinen ſagen
Die vrowen wnden da ſwelch wip
da mite ziere ſinen lip
het er gegen der gewenket
ſo were ſin pris verkrenket
etſliche waſ im doch ſo holt
ſi heten ſin dienſt wol gedolt
ich wene dvrch ſine vremden mal



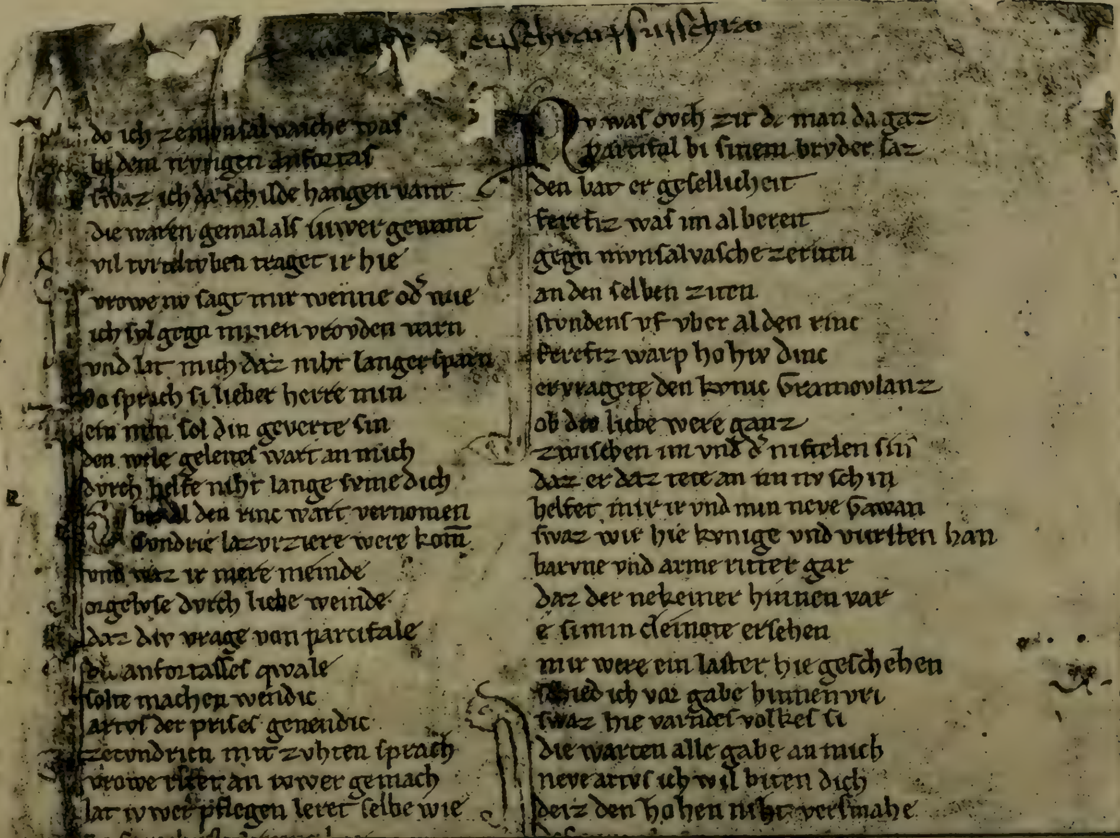
des danket er im ſere
er betes ſelbe ouch ere
Iungen des hiez tragen Gawan
als ez unwizzende were getan
des heiden zuvierde riden rite
daz prueveten ſi da vur hohiv dinc
rittere vnd vrowen
begvnden alle schowen
den wapenroc den schilt d' kursit
der helm was zenge noch zewit

vnd ouch der wirt her Gawan
die viere giengen ſvnder dan
den vrowen wart beſcheiden
an ir pflege der riche heiden
Artus warp eine hochgezit
daz div des morgens ane ſtrit
vf dem velde ergienge
daz man da mite enpfienge
ſinen neven Feirefiz
anden gewerp kert wecg vlitz

FRAGMENT OF THE "PARCIVAL": FOLIO I^v.

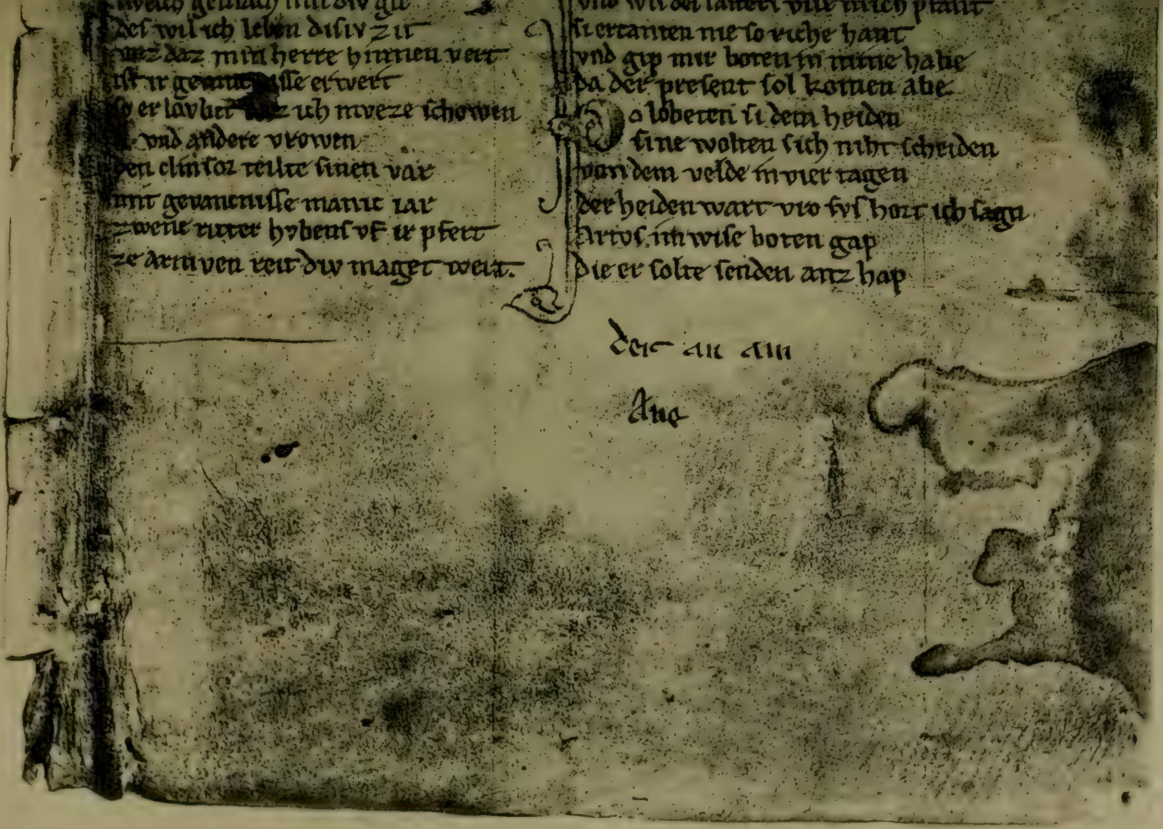
BRITISH MUSEUM
NATURAL

C



do ich zemunſalvaſche was
bi dem trurigen anfortas
ſwaz ich da ſchilde hangen vant
die waren gemal alſ iuwer gewant
vil turteltuben traget ir hie
vrowe nu ſagt mir wenne od' wie
ich ſol gegn minen vrovden varn
vnd lat mich daz niht langer ſparn
Do ſprach ſi lieber herre min
ein man ſol din geverte ſin
den wiſe geleites wart an mich
durch helfe niht lange ſume dich
Uber al den rinc wart vernomen
Cundrie lazvrziere were kom̄
vnd waz ir mere meinde
Orgeluſe durch liebe weinde
daz dir vrage van parcifale
dem anfortaſſeſ qvale
ſolte machen wendic
Artuſ der priſeſ gerendic
Cundrien mit zvhten ſprach
vrowe ritet an iwer gemach
lat iwer pflegen leret ſelbe wie

Nv was ouch zit dc man da gaz
parcifal bi ſinem brvder ſaz
den bat er geſellicheit
Feirefiz was im al bereit
gegn munſalvaſche ze riten
an den ſelben ziten
ſtvndenſ vf vber al den rinc
Feirefiz warp hohiv dinc
ervragete den kvnic Gramovlanz
ob diu liebe were ganz
zwiſchen im vnd d' niftelen ſin
daz er daz tete an im nv ſchin
helfet mir ir vnd min neve Gawan
ſwaz wir hie kunige vnd vurſten han
barvne vnd arme ritter gar
daz der nekeiner hinnen var
e ſinin cleinote erſehen
mir were ein laſter hie geſchehen
wird ich var gabe hinnen vri
ſwaz hie varndeſ volkeſ ſi
die warten alle gabe an mich
neve artuſ ich wil biten dich
daz den hohen niht verſmahe



Deſ wil ich leben diſiv zit
unz daz min herre hinnen vert
iſt ir gewun[illegible]ſe ei wert
So er lovbet [illegible] ich mveze ſchowen
[illegible] vnd andere vrowen
Den clinſor teilte ſinen var
mit gevancniſſe manic iar
Zwene ritter hvbenſ vf ir pfert
ze artuſen reit dw maget wert.

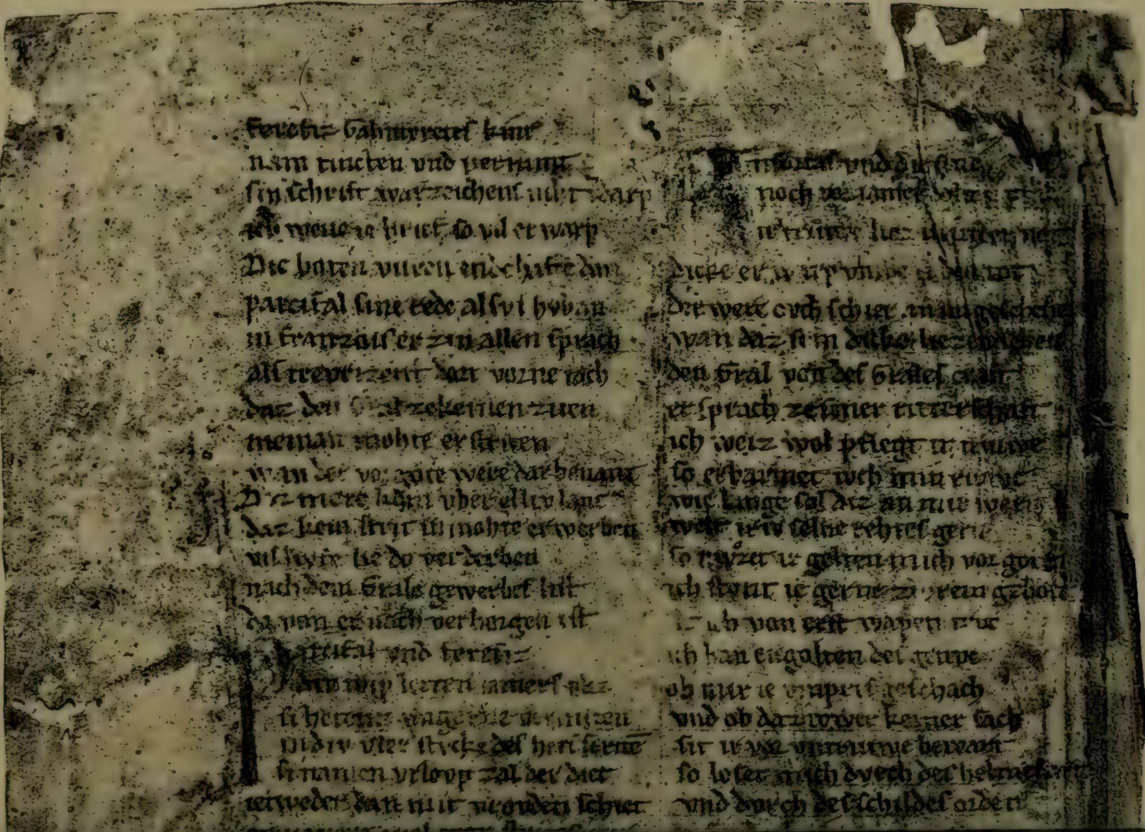
Si ertanten nie ſo riche haant
vnd gip mir boten in mine habe
Da der preſent ſol komen abe
Do lobeten ſi dem heiden
ſine wolten ſich niht ſcheiden
von dem velde in vier tagen
der heiden wart vro ſuſ hort ich ſagen
Artoſ im wiſe boten gap
Die er ſolte ſenden anz hap

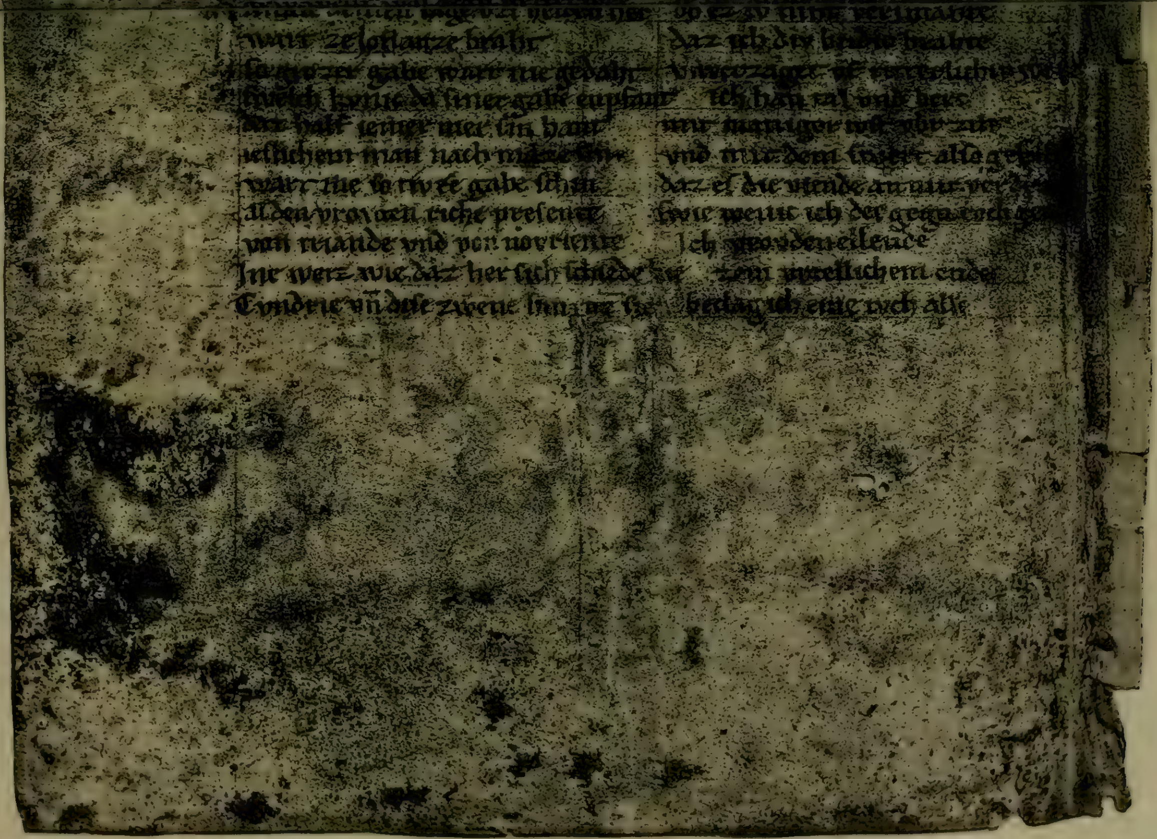
Der an an

Ane

FRAGMENT OF THE "PARCIVAL": FOLIO IIᴮ.

BRITISH MUSEUM
NATURAL HISTORY





FRAGMENT OF THE “PARCIVAL”: Folio II^{v}.

BRITISH MUSEUM

INDEX TO VOL. I.

Page
Abomey, 51
Abraham, Rev. N., 75
African Masks, 27
Africa, S., New Marine Spider from 75
Agapornis, 19
Alcyonium digitatum, 86
Altars, Sacrificial, in Benin, 54
Ammonite, Turvey, 4
Analyses of Metal from Benin, 67, 68
Andigena, 97
Anglo-Saxon Antiquities, 3
Anodorhynchus, 10
Antiquities, Anglo-Saxon, 3
  " Assyrian, 3
  " Cypriote, 26
  " Egyptian, 3
  " Greek, 3
  " Mediæval, 3
Æpyornis, 29
Aphanapteryx, 29
Aprosmictus, 18
Aquarium, Notes from, 23
Ara, 10
Archæological Collections, 1
Archidoris tuberculata, 85, 86
"Argo" Expedition, Mollusca of, 3
Asyndesmus, 104
Aulacorhamphus, 98
auriculata (Zenaida), 36

Bacon, Commander, R.N., 51, 54, 57, 59, 64
Barbatula, 92
Barbets, Catalogue of, 87
Barnardius, 20
Belief, Superstitious (Irish), 28
Benin:
  Altars, Sacrificial, 54
  Analyses of Metal from, 67
  Anklets of Coral, 59
  Bracelet, "Manilio," 54
  Bullock's Head-mask, 57
  Cast-metal Work from, 49
  Copper, Ingraved Melted, 52
  "City of Blood," 51
  Coral Anklets, 59
  Coral Collars, 50
  Dress, 50, 64
  Eye of Metal Figures, 56
  Flint-lock, Representation of, 54
  Frog, Representation of, 57
  Hunter, Representation of, 54
  Idols in, 57
  Juju Houses, 58
  Juju Compound, 56
  King's Compound, 54, 56
  Leopards in Metal, 58
  Leopard's Hide, 54

Page
Benin *(Continued)*:
  Long-handled Goblet [or mace], 64
  "Manilio" Bracelet, 54
  Neolithic Celt, Representation of, 57
  No Indecency in Carved Work, 52
  Origin of Metal Work, 66
  Patina on Metal Work, 58
  Periophthalmus koelreuteri, Representation of, 57
  People of, 69
  Plaques in High Relief from, 50, 51, 52
  Pipe, 49
  Sacrificial Altars, 54
  Statuettes, 59 *et seqq.*
  Snake in, 59
  Tattoo, 51
  Tusk-holders, 54, 56
  Tribal Marks, 54, 56

blainvillii (Penella), 23
Blax, 117
Blomert, Samuel, 52
Bolbopsittacus, 19
Bolborhynchus, 12
Bosman, Mr., 64
Bowen, Mr. T. J., 57 (note), 59
Brachygalba, 89
Brachypternus, 112
Bryan-Faussett Collection, 3, 65
Brown, Sir William, 3, 71; Portrait of, 3
Brotogerys, 13
Bucchero Cypriote Ware, 26
Bucconidæ, 87
Bucco, 87
Bullock's Head-mask, from Benin, 57
Burton, Sir Richard, 50, 59, 64

Cacatua, 9
Cacatuidæ, 8
Cacatuinæ, 8
Cacomantis, 39
Caica, 15
Calliecthrus, 37
Calliptilus, 6
Calliptorhynchus, 8
Callocephalon, 9
Calopsittacinæ, 9
Calopsittacus, 9
Calorhamphus, 93
Campophilus, 114
Cambridge, Rev. O. P., 77
Campothera, 101
Capito, 96
Capitonidæ, 87, 89

Page
Carpococcyx, 45
Cast Metal Work from Benin, 49
Castings of Metal in Benin by *Cera perduta* process, 68
Cat-fish, Electric, 25
Catalogue:
  Of the Cuckoos and Plantain-eaters in Derby Museum, 37
  Of Parrots, 5
  Of Pici, 87
Cayanus, 85
Celeus, 113
Centropus, 41
Centropodinæ, 41
Ceophlœus, 115
Cera perduta, process adopted in Casting of Metal in Benin, 68
Cerchneipicus, 113
Cercococcyx, 39
Ceuthmochares, 45
Chalcococcyx, 39
Chalcopsittacus, 5
Charmosynopsis, 7
Charmosyna, 8
Chatham Islands, their relation to a former Southern Continent, by H. O. Forbes, 75
Chatham Islands, 29
chathamensis (Hemiphaga), 36
Chelidoptera, 88
Chestnut-shouldered Pigeon, 36
Chloronerpes, 101
Chotorhea, 93
Chrysotis, 13
Chrysoptilus, 102
Chrysophlegma, 103
Chrysococcyx, 39
Chrysocolaptes, 113
Cirripeds, 23, 24
Clare, Mr. Harcourt E., 73
Clubb, Mr., 85
Coccystes, 37
Coccyzus, 40
Codex, Mexican, 3
Colaptes, 99, 118
Columba, 36
Columba meridionalis, 36
  " *princeps*, 36
Composition of Metal from Benin, 66
Compound, King of Benin's, 54, 56
Conchoderma virgata, 24
Conurinæ, 10
Conuropsis, 11
Conurus, 10
Coot, giant, 29
Copepod *(Penella blainvillii)*, 23, 24
Coracopsis, 16
corallodendron (Erythrina), 11
Coral Anklets from Benin, 59
Coral Collars from Benin, 50, 56, 64
Coriphilus, 6
Corophium grossipes, 86
Corythæola, 47
Coua, 45
Crab-gall on *Millepora*, 81
Crocomorphus, 113
Crotophaga, 46
Crotophaginæ, 46

Page
Cruickshank, Mr. Brodie (quoted), 65
Crustacean parasitic on Flying Fish, 23
Cuckoos and Plantain-eaters, Catalogue of, 37
Cuckow, Glossy, 40
Cuckoos, 37
Cuculi, 37
Cuculidæ, 37
Cuculinæ, 37
Cuculus, 38
Cuculus libanoticus, 38
Cyanocorax cyanomelas, 85
  " *cyanopogon*, 85
  " *cayanus*, 85
Cyanolyseus, 11
cyanomelas (Cyanocorax), 85
Cyanops, 94
Cyanopsittacus, 10
cyanopogon (Cyanocorax), 85
Cyanorhamphus, 21
Cyanorhamphus magnirostris, sp. n. 21
cyanus (Cyanocorax), 85
Cyclopsittacidæ, 8
Cyclopsittacus, 8
Cypriote Antiquities, 26
  " Terra-cottas, 26

"Dahomey," Forbes' (quoted), 59
Dahomey, King of 51
Dalton, Mr. O. M., (note) 70
Dana, Mr., 82
Dandridgea, 77
Darley-Dale Quarry, 72
Dasyptilus, 16
Dasylophus, 45
Dendrobates, 110
Dendropicus, 108
Dendrocopus, 106
Dendrocoptes, 108
Derby Museum, 1
Derby, Earl of, 1, 2, 30, 71, 74, 85
Deroptyus, 14
Desidæ, 75
Desis, 75, 77
digitatum (Alcyonium), 86
Diplopterinæ, 46
Diplopterus, 46
Dodo, 29
Dreams, Book of 122
Dress of Benin People, 50, 65
Dromococcyx, 46
Dryococcyx, 44
Dryotomus, 115, 118
Eclectus, 16
Egypt, Neolithic Flint Implements from, 27

Elder, Dempster, & Co., Messrs., 25
Electric Fishes, 25
electricus (Malapterurus), 25
Ethnographical Collections, 1
Eudynamis, 40
Enamelled Spots on Metal Leopard from Benin, 58, 59
Eos, 5
Erythrina corallodendron, 11
Erythromachus, 29

Page
Erythrobucco, 89
Evans, Sir John, 68
Exocœtus volitans, 23
exul (Palæornis), 30
Eye, pupil of in Metal Figure from Benin, 56

Feeding of Young Trout, 24
Fejervary Ivories, 3
Fetish of Abomey, 59
Fetish, *Malapterurus* as, 26
Flint-lock in Figure from Benin, 54
Flint Implements, Neolithic, from Egypt, 27
Flints, Palæolithic, from Egypt, 27
Flower, Sir William, 24, 71
Flying Fish, Crustacean Parasitic on, 23
Forwood, Sir W. B., 73, 74
" Lady, 74
Foundation Stone of Museums Extension, 71, 73
Forbes, Commander, 59, 70
Forbes, Dr. Henry O., 1, 29
The Chatham Islands: their relation to a former Southern Continent, 75
Forbes, Henry O., and H. C. Robinson, 5, 37, 87
formidabilis (Robsonia), 77
" *(Paradesis)*, 77
Fregilupus varius, 30, 32, 33
Frog on Benin Figure, 57
Fulas, 69

Galbalcyrhynchus, 89
Galbula, 89
Galbulidæ, 87, 88
Galbulinæ, 88
Gallas, 69
Gallirex, 47
Garrod, Professor, 33
Garreia nutans, 86
Gasterosteus pungitius, Habitat of, 24
Gatty, Mr. C. T., 121
Gauropicoides, 103
Gecinulus, 103
Gecinus, 100
Gentry, Mr., 85
Geococcyx, 45
Geocolaptes, 99
Geoffroyus, 16
Geopsittacus, 22
Gladstone, Dr., 68
Glass Manufacture in Nupe, 59
Glossopsittacus, 7
Glossy Cuckow, 40
Gnathosittaca, 11
Goldie, Sir George (referred to), 69
Gould Collection in Philadelphia, 36
Grandidier, M., 30
grossipes (Corophium), 86
Guira, 46
Günther, Dr., 24, 32
Gymnobucco, 91
Gymnoschizorhis, 48
Gypopsittacus, 15

Page
Habitat of *Gasterosteus pungitius*, 24
Hapalocarcinus marsupialis, 81
Hapaloptila, 88
Harrison, Mr. J. C., 28
Hartert, Mr., 31
Harting, Mr. J. E., 5
Hearn, Captain, 23
Heliobucco, 91
Hemicercus, 114
Hemilophus, 114
Hemiphaga chathamensis, 36
" *novæ-zealandiæ*, 36
" *spadicea*, 35
Henicognathus, 11
Henshaw, Messrs., 73
Hieratic Papyri, 4
Hierococcyx, 38
Hickson, Prof. Sydney J., 81
Higgins, Rev. H. H., 4
Hilbre Island, Marine Invertebrates from, 85
hombergi (Tritonia), 85
Honey Guides, Catalogue of, 87
Houlding, Lord Mayor, 73
Hunter, Figure from Benin of a, 54
Hunting Knife, in figure from Benin, 54
Hyetornis, 43
Hypocharmosyna, 7
Hypopicus, 105
Hypoxanthus, 100
Hypsipetes, 30

Idols in Benin City, 57
Ilorin, 69
Indicator, 117
Indicatoridæ, Catalogue of, 87
Inscription on Foundation Stone of Museums Extension, 73
Introductory Note to Bulletin, 1
Ipocrantor, 114
irideus (*Salmo*), 24
Irish Superstition, 28
Irvine, Mr. James, 52
Islet au Mât, 31, 32
Ivories, Fejervary, 3
Iynginæ, 117
Iyngipicus, 109
Iynx, 117

Jacamars, Catalogue of, 87
Jacamaralcyon, 89
Jacameropinæ, 89
Jacamerops, 89
Jakuta, 57
Johnson Pasha, 27
Jones, Mr. A. L., 25
Jones, Mr. E. Dunkinfield, C.E., 4
Jones, Mr. Morris Paterson, 73, 74
Juju Compounds in Benin, 56
Juju Houses in Benin, 58

Katanga, Copper Ore from, 68
Key, Mr. W., 72
King of Benin's Compound, 54, 56
Knowsley Menagerie, 2
" " Parrots in, 2
Köpke's Fragments, 120

Page
Lachmann, Herr, 120
Lamb, Mr. Bullock, 51
Laverock, Mr., 85
Leasowe Embankment, 24
"Leguat, François, Voyage of," referred to, 31
Leguatia, 29
Leopard in Metal from Benin, 58
Leopard's Hide Dress in Benin figure, 54
Leopard, Fetish of Abomey, 59
Lepidogrammus, 45
Lepocestes, 111
Leptopsittace, 12
libanoticus (Cuculus), 38
Libya, Table lands of, 27
Licmetis, 9
Liopicus, 108
Literary and Philosophical Society of Liverpool, 3
Liver Meal, Food for Young Trout, 25
Longperrier, M. de, 57
Long-handled Goblet [or Mace] from Benin, 64
Lophopsittacus, 8
Lophopsittacus mauritianus, 29
Lord Howe's Island, 36
Loriculus, 19
Loriidæ, 5
Lorius, 6

Madagascar, 29
magnirostris (Cyanorhamphus), sp. n., 21
Major, Dr. Forsyth, 30
Manilio Bracelet from Benin, 54
Malacoptila, 88
Malapterurus electricus, 25
" " feeding, 25
Marcez, Peter de, 52
marsupialis (Hapalocarcinus), 81
Mascarene Islands, new and supposed extinct bird from, 29
Mascarinus, 17
Mask, Bullock's head, from Benin, 57
Mât, Islet au, 31, 32
mauritianus (Lophopsittacus), 29
Maxwell, Mr. Maxwell Hyslop, jr., 73
Mayer Museum, 1, 2, 3
Mayer, Joseph, Portrait of, 2
"Medicine" at the Museums, 28
Megalæma, 93
Melanerpes, 104
Melanobucco, 90
Melopsittacus, 22
"Melted Copper," ingraved, in Benin, 52
meridionalis (Columba), 36
Mesobucco, 95
Mesopicus, 111
Metamorphoses of *Lepidoptera* from San Paulo, 4
Mexican Codex, 3
Microdynamis, 40
Microglossus, 8
Micromonacha, 88
Micropternus, 112
Micrositace, 12

Page
Microstictus, 114
Miglyptes, 112
Millepora, 81
Milne-Edwards, Prof., 30, 31 (note), 31
Misocalius, 39
Mollusca of the "Argo" Expedition, 3
Monacha, 88
Moore, Mr. T. J., 4
Moor, Consul-General, 58
Morococcyx, 45
Mountford, Mr. E. W., 72, 73
Müller, Prof. Max, 119
Murie, Dr., 30
Museums Extension Buildings, 71
Museums, Notes from, 23
Museum Reports, 3
Musophaga, 47
Musophagidæ, 46
Myopsittacus, 12
Myres, Mr. J. L., 27

Nanodes, 22
Nasiterna, 9
Nasiterninæ, 9
Necropsar, 32, 35
Necropsar leguati, 32, 33, 34
Necropsar, new and supposed extinct species of, 29
Necropsar leguati, n. sp. (description), 34, 35
Necropsar rodericanus, 32, 33
Necropsittacus, 16
Neolithic Celt on Benin Figure, 57
Neolithic Flint Implements from Egypt, 27
Neomorphinæ, 45
Neomorphus, 45
Neophema, 20
Neopsittacus, 8
Nesoceleus, 112
Nesoctites, 117
Nestor, 5
Nestoridæ, 5
Newton, Professor Alfred, 29, 30, 31
Newton, Sir Edward, 30, 32
New Zealand, 29
Nonnula, 88
Norfolk Island, 36
Notes from Museums and Aquarium, 23
novæ-zealandiæ (*Hemiphaga*), 36
"Ntobo," native name of *Malapterurus*, 26
Nupe, 59, 69
nutans (*Garveia*), 86
Nymphicus, 21

Ogilby, John, African Travels, 52
Oliver, Captain (note) 31
Oreopsittacus, 8
Origin of Benin Metal Work, 66, 69, 70
Oustalet, M. E., 30, 32

Pachycoccyx, 37
Pachynus, 14
Palæmonetes varians, 24
Palæornis, 17
Palæornithinæ, 16
Palæornis exul, 30
Papyri, Hieratic, 4

Page
Paradesis, gen. nov., 75
Paradesis tubicola, n. sp., 75, 77, 78
Parasitic Crustacean on Flying Fish, 23
Parcival of Wolfram von Eschenbach, Fragment of, 119
Parrots, Catalogue of, in Derby Museum, 5
Patina on Benin Metal Work, 58
Penella, 24
Penella blainvillii, figure of, 23
People of Benin, 69
Periophthalmus koelreuteri, 57
Pezoporus, 22
Phœnicophaes, 44
Phœnicophainæ, 42
Piaya, 43
Pici, Catalogue of, 87, 118
Picidæ, Catalogue of, 87
Picidæ, 99
Picinæ, 99
Picoides, 108
Picumninæ, 115
Picumnus, 115
Picus, 115
Pigeon, Note on two species of, 35
Pigeon, Southern, of Latham, 36
Pioninæ, 13
Pionus, 14
Pionopsittacus, 14
Pipe, Cast Metal, from Benin, 49
Plantain-eaters, Catalogue of, 37
Platycercinæ, 20
Platycercus, 20
Plaques in high relief from Benin, 50, 51, 52
Pocock, Mr. R. I., 75
Pœcillopora, 81
Pœocephalus rubricapillus, sp. n., 15
Pogonorhynchus, 89
Polytelis, 18
Porphyrocephalus, 20
Powder flask in figure from Benin, 54
Priebsch, Dr. R., on the Parcival, 119
princeps (Columba), 36
Prioniturus, 17
Prodotiscus, 117
Psephotus, 20
Psilopogon, 95
Psittaci, 5
Psittacidæ, 9
Psittacella, 19
Psittacinæ, 16
Psittacula, 12
Psittacus, 16
Psitteuteles, 7
Psittinus, 19
Pteroglossus, 98
Ptilosclera, 7
Ptistes, 18
Puff-birds, Catalogue of, 87
Pupil of Eye in Benin figure, 56
Pyrrhulopsis, 18
Pyrrhura, 12

Rätzil, Herr, 69
Read, Mr. C. H., (note) 70
Red Cypriote Ware, 26, 27

Page
Relation de l'Ile Rodrigue (quoted) 31
Relief, Plaques from Benin, in high, 50, 51, 52
Reports, Museum, 3
Reunion, 30
Rhamphastidæ, Catalogue of, 87
Rhamphastidæ, 97
Rhamphastos, 97
Rhamphococcyx, 44
Rhamphomantis, 40
Rhinococcyx, 44
Rhinortha, 44
Rhopodytes, 43
Rhynchopsittacus, 10
Ridyard, Mr. A., 25, 27
Rio Negro, 85
Robes on Metal Figures from Benin, 64
Robinson, H. C., and Henry O. Forbes, 5, 37, 87
Robsonia formidabilis, 77
rodericanus (Necropsar), 32
Rodriguez, 30
Roth, Mr. F., 58
Rothschild, Hon. Walter, 31
Rouillard, M. (note) 31
Round, Figures from Benin, in the, 52, 53, 54, *et seqq.*
rubricapillus (Pœocephalus), sp. n., 15

Sacrificial Altars in Benin, 54
Salmo irideus, 24, 25
San Paulo, Metamorphoses of Lepidoptera from, 4
Sapheopipo, 111
Sasia, 117
Saurothera, 42
Scherer, Mr. W., 119
Schizorhis, 47
Scythrops, 41
Selenidera, 98
Semper, Dr. (quoted), 81
Sette Kama, Masks from, 27, 28
Seton-Karr, Mr. Heywood, 27
Seriatopora, 81
"Shango," 57
Sharpe, Dr. R. B., 31
Sideropora, 81
Slater, Mr., 32
Smilorhis, 91
Snake, Fetish of Wydah, 59; in Benin, 59
Southern Pigeon, of Latham, 36
spadicea (Hemiphaga), 35
Spider, New Marine, from S. Africa, 75
Spiegelberg, Dr. Wilhelm, 4
Sphyropicus, 105
St. Gall, Library at, 120
Stactolæma, 92
Stanley, Lord, 1
Stancliffe stone, 72
Starling, Crested, 30
Statuettes, Solid Metal, from Benin, 59
Stickleback, 24
Stone Celt, Superstition regarding, 28
Stone, Mr. Whitmer, 85
Strickland, Mr., 30

Page
Stringopidæ, 22
Stringops, 22
Surniculus, 37

Taccocua, 43
Tanygnathus, 17
Tattoo of Benin People, 51, 56
Taylor, Mr. Austin, 72, 74
Tetragonops, 97
Thereiceryx, 93
Thripias, 109
Thriponax, 115
Tiga, 112
Toby, Mr. S., 27
Toucans, Catalogue of, 87
Tortoises, gigantic, 29
Trachylæmus, 96
Trachyphonus, 95
Tribal Marks on figure from Benin, 54, 56
Trichoglossus, 6
Tricholæma, 90
Triclaria, 14
Tring Museum, 31
Tristram, Rev. Canon, 30
Tritonia hombergi, 85
Trout, Feeding of Young, 24
tuberculata (Archidoris), 85, 86
tubicola (Paradesis), 75
Turacus, 46
Turvey Ammonite, 4
Tusk-holders from Benin, 54, 56

Urochroma, 15
Urococcyx, 44
Urodynamis, 40
Urogalba, 88

Vandeleur, Lieut., 59, 69
varians (Palæmonetes), 24
varius (Fregilupus), 30
Verreaux, M. J., 30
Verreauxia, 117
Vini, 6
virgata (Conchoderma), 24
volitans (Exocœtus), 23

Warr, Mr. A. F., M.P., 74
Weston, Miss J., Translation of Parcival, (note) 120
White painted Cypriote Ware, 26
Willink, Mr. W. E., 72, 73, 74
Willink, Mrs., 74
Wilson Collection in Philadelphia, 85
Wolfram von Eschenbach, Parcival of, 119
Woodpeckers, Catalogue of, 87
Works of Art from Benin City by Read and Dalton (referred to), 70
Wydah, the Snake Fetish of, 59
Wynberg, South Africa, new Spider from, 75

Xantholæma, 95
Xiphidiopicus, 111

Zanclostomus, 43
Zenaida zenaida, 36
„ *auriculata*, 36
Zenopicus, 108

Bulletin No. 1 *issued 4th August*, 1897.
„ *No.* 2 „ *28th February*, 1898.
„ *Nos.* 3 and 4 „ *7th October*, 1898.

PRESENTED
13 APR. 1899

The Bulletin

of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums (**H. O. Forbes, LL.D.**),

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals; but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. Henry Young & Sons, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net. per copy, or to subscribers at 8s. net per volume, payable in advance.

BULLETIN

OF THE

LIVERPOOL MUSEUMS

VOLUME II.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL

EDITED BY

HENRY O. FORBES, LL.D.

DIRECTOR OF MUSEUMS

BRITISH MUSEUM NATURAL HISTORY

Volume II.

LIVERPOOL
THE FREE PUBLIC MUSEUMS
HENRY YOUNG & SONS, 12, South Castle Street
and 23, Parker Street
1900

CONTENTS OF VOL. II.

Page

THE EXPEDITION TO SOKOTRA:

I. Descriptions of the New Species of Birds. By W. R. Ogilvie-Grant and Henry O. Forbes, LL.D., - 2
II. Descriptions of the New Species of Reptiles. By G. A. Boulenger, F.R.S., - 4
III. Descriptions of the New Species of Scorpions, Centipedes, and Millipedes. By R. I. Pocock, - 7
IV. Descriptions of Three New Species of Butterflies. By W. R. Ogilvie-Grant, - 10
V. Diagnoses of the New Species of Landshells. By Edgar A. Smith, - 11
Cast-Metal Work from Benin. By Henry O. Forbes, - 13
Catalogue of the Coraciæ: Cuckoo-Rollers, Rollers, Motmots and Todies, Kingfishers and Bee-eaters; and of the Trogons (Trogonidæ) in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson, - 15

THE EXPEDITION TO SOKOTRA *(continued)*:

VI. Descriptions of One New Genus and Fourteen New Species of Moths. By Sir George F. Hampson, Bart., - 37
VII. Descriptions of One New Genus and Four New Species of Spiders. By R. I. Pocock, - 40
VIII. Descriptions of Two New Genera and Six New Species of *Orthoptera*. By Malcolm Burr, - 42
IX. Descriptions of Ten New Species of *Hemiptera*. By G. W. Kirkaldy, - 45
Note on Three Rare and not hitherto Figured Species of *Zosterops* in the Derby Collection. By H. C. Robinson. (With Plate). - 47
Birds in the Derby Museum collected in the Antarctic Regions, - 48
Catalogue of the Charadriformes: Auks, Gulls, Skuas; Lark-plovers, Stone-curlews, Jaçanas, Sheathbills, Crab-plovers, Coursers, Plovers and Snipes; Pigeons, and Sand Grouse in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson. (With two Plates and Figure in text). - 51, 117
On a Collection of Stone Implements in the Mayer Museum, made by Mr. H. W. Seton-Karr, in Mines of the Ancient Egyptians, discovered by him in the Plateaux of the Nile Valley. By Henry O. Forbes, LL.D. (Illustrated). - 77
Contributions to the Zoology of Northern Queensland. By H. C. Robinson, - 115
On a New Species of *Aplonis*, in the Derby Museum, from Santa Cruz Island, in the Western Pacific. By Henry O. Forbes, LL.D., - 116

LIST OF ILLUSTRATIONS.

Zosterops chlorates, Zosteropidæ, Plate I., Fig. 1, - *To face* 47
Zosterops aureiventris, " Plate I., Fig. 2, - " 47
Zosterops griseiventris, " Plate I., Fig. 3, - " 47
Head of *Synthliborhamphus wumizusume*, in Breeding Plumage, - 52
Map of part of the Wady el Sheikh, - *To face* 77

Page
View of Right Bank of the Wady el Sheikh, from above Camp XII., - - 81
Flint Implements from Ancient Egypt :—
Figs. 1—8, - - - - - - - - 82
Figs, 9, 10, - - - - - - - - 83
Figs. 11, 12, - - - - - - - - 84
Figs. 13, 14, - - - - - - - - 85
Figs. 15—17, - - - - - - - - 86
Figs. 18—20, - - - - - - - - 87
Figs. 21—23, - - - - - - - - 88
Figs. 24—26, - - - - - - - - 89
Figs. 27—30, - - - - - - - - 90
Figs. 31—34, - - - - - - - - 91
Figs. 35, 36, - - - - - - - - 92
Figs. 37—40, - - - - - - - - 93
Figs. 41, 42, - - - - - - - - 94
Figs. 43—45, - - - - - - - - 95
Figs. 46, 47, - - - - - - - - 96
View of Workings on a Ledge of the Cliff near Camp VI., - - - 101
View of Shafts on the Level Terrace-Tableland near Camp XI., - - 102
View of Shafts on the Level Terrace-Tableland near Camp XI.. - - 103
View of Shafts on one of the Plateaux near Camp XI., - - - - 104
View of Shaft with Raised and Partly-worked Material Piled Round it, - 104
Manufacture of Flint Knives from the North Wall of the Main Chamber in Tomb 15, Beni Hasan, - } (By courtesy of the Egypt Exploration Fund), 108
The Same from the West Wall in Tomb 2, Beni Hasan, } 109
Turturœna iriditorques ♂, Columbæ, Plate II., - - - - *To face* 134
Turturœna iriditorques ♀, Columbæ, Plate III., - - - - „ 135

* * *

BRITISH MUSEUM

MAY, 1899. Vol. II. No. 1.

BRITISH MUSEUM NATURAL HISTORY.

Bulletin
of the
Liverpool Museums
Under the City Council.

CONTENTS.

PAGE
The Expedition to Sokotra: 1
Descriptions of the New Birds. By W. R. Ogilvie-Grant and H. O. Forbes, LL.D. - - 2
Descriptions of the New Reptiles. By G. A. Boulenger, F.R.S. - - - - - - - 4
Descriptions of the New Scorpions, Centipedes, and Millipedes. By R. I. Pocock 7
Descriptions of Three New Butterflies. By W. R. Ogilvie-Grant - - - - 10
PAGE
The Expedition to Sokotra (*Contd.*)—
Descriptions of the New Land-shells. By Edgar A. Smith 11
Cast-metal Work from Benin. By H. O. Forbes - - - - 13
Catalogue of the Coraciæ: Cuckoo-Rollers, Rollers, Motmots and Todies, Kingfishers, and Bee-eaters; and of the Trogons (Trogonidæ) in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson - - 15

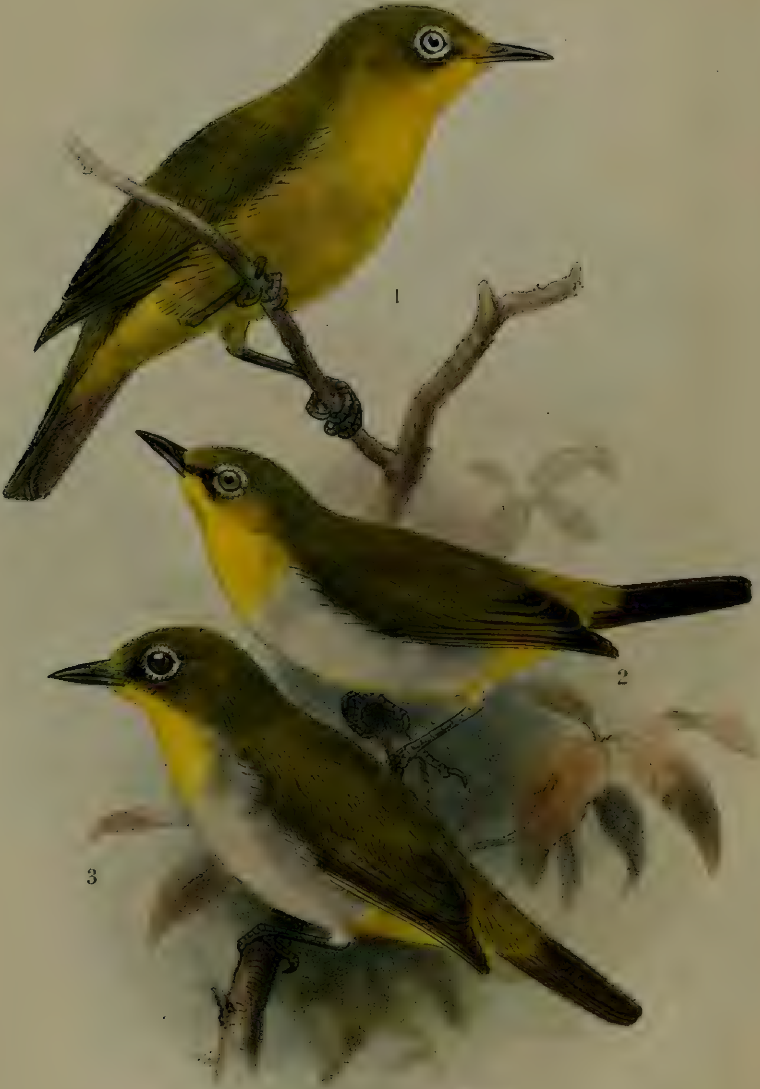
Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, South Castle Street,
and 23, Parker Street.

ISSUED 18th MAY.

The description of the plate accompanying this Number is held over till our next issue.

BRITISH MUSEUM
NATURAL HISTORY.



Nat. size.

J. Smit del. et lith. Mintern Bros. imp.

1. Zosterops chlorates, Hartl. 2. Z. aureiventris, Hume.
3. Z. griseiventris. Sclater.

Bulletin
of the
Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. II. MAY, 1899. No. 1.

The Expedition to Sokotra.

DURING the past winter a biological and geographical investigation of the Island of Sokotra (lying in about 12° north latitude and 54° east longitude), some 600 miles south-east of Aden, was undertaken, on behalf of the British Museum, by Mr. W. R. Ogilvie-Grant, and, on behalf of the Liverpool Corporation, by the Director of Museums (Dr. H. O. Forbes). Mr. W. Cutmore, of the Liverpool Museum, accompanied the party as taxidermist. The expedition landed at Aden on the 18th of November, 1898, and was there augmented by six Somali servants, and by one native officer (Jamadar) and one sowar, from the Aden troop. Political difficulties between the Government of India and the Sultan of Sokotra unfortunately caused some delay in starting; but through the kindness of the Political Resident, Brigadier-General Creagh, V.C., these days were employed in visiting Sheik Othman and Lahej in South Arabia, where collections of considerable interest were made. On the 1st of December, the difficulties referred to having been surmounted, the party was enabled to leave for Sokotra on board the Royal Indian Marine steamer *Elphinstone*, which had most generously been placed at its disposal by the Indian Government. Permission was also kindly given to detain the vessel for some days at Abd-el-Kuri, a previously unexplored island lying between Sokotra and Cape Guardafui, the eastern horn of Africa. There four days were spent in making as complete a collection of the fauna, flora, and geology of the island as the time permitted. On the 7th of December, the expedition was landed on Sokotra, near Hadibu, the capital, and it remained on the island till the 22nd of February, 1899. On the return voyage a second visit was paid to Abd-el-Kuri for a couple of days, to enable more complete collections from that out-of-the-way spot to be made. Late on the 26th of February the *Elphinstone* anchored in Aden harbour, and the party, after discharging its native contingent, embarked for England on the 2nd of March, arriving in London on the 14th of the same month.

A complete account of the island, with a map, a list of the collections, and full descriptions of the new species obtained by the expedition, illustrated by plates and blocks, will be published as a special volume, which is now in active preparation. In the following pages, meanwhile, short diagnoses of some of the more conspicuous zoological novelties are given.

I. Descriptions of the New Species of Birds.

By W. R. Ogilvie-Grant and Henry O. Forbes, LL.D.

(1) *Scops socotranus.*

Adult male:—Most nearly allied to *S. giu*, but paler and greyer, the occiput and nape whitish, with fine transverse mottlings of brownish black; primary coverts mostly rufous, forming a rather conspicuous patch; the tips of the primary quills mostly pale rufous, instead of brownish grey; belly white, with very few black arrow-head markings. The feathering on the tarsus less extended, and terminating 0·2 inch from the basal joints of the toes. Iris yellow; bill blackish horn-colour.

Total length (measured in the flesh), 7·0 inches; wing, 5·0; tail, 2·2; tarsus, 1·25.

Habitat. Sokotra.

(2) Fringillaria insularis.

Adult male:—Most nearly allied to *F. tahapisi*, from which it differs in having the inner margin of the secondaries devoid of rufous, and the general colour of the chest and rest of the under parts pale brick colour, instead of dull rufous chestnut. Iris brown; culmen blackish horn; cutting edges of the upper and the whole of the lower mandible orange yellow; tarsi and feet flesh-colour; claws blackish horn.

Adult female:—Similar to the female of *F. tahapisi*, but the inner margins of the secondaries are devoid of rufous, and the chest and rest of under parts are pale brick-colour.

Male:—Total length (measured in the flesh), 5·2 inches; culmen, 0·38; wing, 2·9; tail, 2·2; tarsus, 0·6.

Female:—Total length (measured in the flesh), 5·2 inches; culmen, 0·4; wing, 2·8; tail, 2·25; tarsus, 0·62.

Habitat. Sokotra, from sea level to an elevation of 3500 feet, where its place is taken by *F. socotrana.*

(3) Fringillaria socotrana.

Adult male:—A very distinct species, most nearly allied to the male of *F. insularis*, from which it differs in having the rump feathers tipped with white forming a conspicuous white patch. The wing-coverts and basal half of the outer edge of the secondaries dull rufous chestnut; the chin and throat white; the chest and upper breast dull rufous chestnut; the lower breast, belly, and under tail-coverts whitish. Iris dark brown; culmen blackish horn; cutting edges of the upper and the whole of the lower mandible orange yellow; tarsi yellowish flesh; toes dusky; claws blackish horn.

Adult female:—Similar to the male.

Male:—Total length (measured in the flesh), 5·25 inches; culmen, 0·38; wing, 2·75; tail, 2·2; tarsus, 0·65.

Female:—Total length (measured in the flesh), 5·0 inches; culmen, 0·38; wing, 2·6; tail, 2·2; tarsus, 0·65.

Habitat. Adho Dimellus, 3500-4500 feet, Sokotra.

(4) Caprimulgus jonesi.

Adult male:—Nearest to *C. nubicus* from Arabia, Palestine, and North-East Africa, but at once distinguished by having the ground colour of the upper parts clear grey instead of sandy brown, and the markings on the top of the head and on the scapulars rufous and buff instead of whitish buff. The whole of the black markings on the upper parts are, moreover, much coarser.

Total length (measured in the flesh), 9 inches; culmen, 0·4; wing, 6·1; tail, 4·2; tarsus, 0·75.

Habitat. Dimichiro Valley, Garieh Plain, E. Sokotra.

This species has been named in honour of M. P. Jones, Esq., J.P., Liverpool, Chairman of the Museums Sub-Committee.

(5) Phalacrocorax nigrogularis.

A very distinct species belonging to the group with fourteen tail feathers, and with the culmen exceeding 1·5 inch in length from the feathers on the forehead to the tip of the bill.

Adult male:—General colour above and below black with a slight gloss, the wing-coverts and scapulars tinged with bronze and with a black spot at the extremity. The throat and hind neck ornamented with minute scattered white plumes, indicating full breeding plumage. Iris dark emerald green; pouch and naked skin in front of and surrounding the eye dirty black; bill greyish black, paler horn-colour towards the tip and on the terminal half of the latericorn; a greenish band along the basal half of the mandible; legs and feet black, webs browner.

Total length (measured in the flesh), 30·5 inches; culmen, 3·0; wing, 11·5; tail, 4·3; tarsus, 2·55.

Habitat. Coasts of Sokotra, and of Abd-el-Kuri.

(6) Passer hemileucus.

Adult male:—Most nearly allied to *P. insularis*, but much smaller and very much paler, especially on the under parts, which are nearly pure white. The black patch on the throat is much reduced, as in *P. pyrrhonotus*, which species it closely resembles in plumage, but from this latter it may at once be distinguished by the much longer and stouter *black* bill. Iris brown; bill black; legs and feet fleshy horn-colour.

Adult female:—Most nearly allied to the female of *P. insularis*, but much smaller and very much paler, the under parts being nearly pure white and the dusky patch down the middle of the throat absent.

Male:—Total length (measured in the flesh), 5·4 inches; culmen, 0·45; wing, 2·9; tail, 2·2; tarsus, 0·7.

Female:—Total length (measured in the flesh), 5·4 inches; culmen, 0·48; wing, 2·8; tail, 2·1; tarsus, 0·7.

Habitat. Island of Abd-el-Kuri.

(7) Motacilla forwoodi.

Adult female in winter plumage:—Most nearly allied to *M. alba* in full *summer* plumage, the top of the head and the entire chin, throat, and fore-neck being deep black, but the forehead is *dark grey* like the back and rest of the upper parts, instead of pure white. Iris dark brown; bill and legs black.

Total length, 7 inches; culmen, 0·45; wing, 3·3; tail, 3·4; tarsus, 0·85.

Habitat. Island of Abd-el-Kuri.

This beautiful species is named in compliment to Sir William Forwood of Bromborough Hall, Cheshire, Chairman of the General Committee which administers the Museums, Libraries, and Art Gallery of the City of Liverpool.

II. Descriptions of the New Species of Reptiles.

By G. A. Boulenger, F.R.S.

(1) Phyllodactylus trachyrhinus.

Snout short, broadly rounded, covered with large subconical tubercles adherent to the skull; forehead convex; ear-opening small, round, its distance from the eye equal to the length of the snout. Limbs rather short; digits short, depressed, with well-developed distal expansions, and a series of transversely enlarged lamellar scales on the lower surface. Scales on the head much larger than on the body, gradually decreasing in size on the occiput; rostral completely divided into two shields, which are not larger than the adjacent labials; nostril between the first labial and two small nasals; 8 to 10 upper and 9 lower labials; symphysial small, trapezoid, not larger than the adjacent labials; a series of small shields bordering the symphysial and the anterior lower labials. Body covered, above and below, with uniform, flat, smooth, juxtaposed granules, smallest on the sides. Tail thick, cylindrical, prehensile, covered with uniform flat granules arranged in rings. Pale brownish above, with blackish marblings; a black streak on each side of the head, passing through the eye; white beneath.

Total length, . .	95 millim.	Fore limb, . .	13 millim.
Head, . . .	13 "	Hind limb, . .	18 "
Width of head, .	9 "	Tail, . . .	40 "
Body, . . .	32 "		

Two specimens from Sokotra (Jena-agahan, 1200-2500 feet, and Adho Dimellus, 3500-4500 feet).

(2) Hemidactylus granti.

Closely allied to *H. mabuia*, Mor. Head regularly oviform; snout longer than the distance between the eye and the ear-opening, once and a half the diameter of the orbit; forehead concave; ear-opening large, oval, oblique. Body and limbs moderate; digits moderately dilated, free; 7 or 8 lamellæ under the thumb, 8 or 9 under the fourth finger, 6 or 7 under the hallux, 9 to 11 under the fourth toe. Head covered with uniform granules, which are much larger on the snout than on the occiput; rostral subquadrangular, not twice as broad as deep, with median cleft above; nostril pierced between the rostral, the first upper labial and three small scales; 8 to 10 upper, and 7 to 9 lower labials; symphysial large, triangular or pentagonal, twice as long as the adjacent labials; four chin-shields, median pair largest and in contact with the symphysial. Back covered with very small granules, intermixed with numerous small, round, feebly keeled or subconical tubercles disposed irregularly; ventral scales small, cycloid, smooth, feebly imbricate. Male with an angular series of 8 to 12 præanal pores. Tail feebly depressed, tapering to a fine point, covered with granular scales intermixed with enlarged pointed tubercles, forming regular transverse series; a series of transversely enlarged plates inferiorly. Greyish or brownish above with dark irregular marblings, or dark black-edged wavy cross-bars, four in number, on the nape and back; a dark streak on each side of the head, passing through the eye; tail with regular dark cross-bars; lower parts whitish.

Total length, . .	172 millim.	Fore limb, . .	26 millim.
Head, . . .	22 "	Hind limb, . .	33 "
Width of head, .	16 "	Tail, . . .	94 "
Body, . . .	56 "		

Numerous specimens from Adho Dimellus, Sokotra, 3500-4500 feet.

(3) Hemidactylus oxyrhinus.

Snout pointed, slightly longer than the distance between the eye and the ear-opening, which equals the diameter of the orbit; forehead slightly concave; ear-opening small, oval, oblique. Body and limbs moderate. Digits moderately dilated, free; 7 or 8 lamellæ under the thumb, 8 or 9 under the fourth finger, 6 or 7 under the hallux, 11 or 12 under the fourth toe. Head covered with small convex granules increasing in size posteriorly; rostral subquadrangular, not twice as broad as deep, with median cleft above; nostril pierced between the rostral, the first upper labial, and three small scales; 8 to 10 upper and 7 or 8 lower labials; symphysial large, triangular, more than twice as long as the adjacent labials; four chin-shields, median pair largest and in contact behind the symphysial. Back covered with equal or sub-equal, rather large, obtusely keeled, juxtaposed tubercles; ventral scales much smaller, cycloid, smooth, sub-imbricate. Male with two præanal pores. Tail cylindrical, tapering, covered with uniform small smooth scales, with a median series of transversely enlarged plates inferiorly. Pale buff or greyish brown, with more or less distinct darker markings in the form of four wavy cross-bars on the nape and back, and annuli on the tail; the caudal annuli black in the young, separated by white interspaces; a dark streak on each side of the head, passing through the eye.

Total length,	95 millim.	Fore limb,	15 millim.
Head,	13 "	Hind limb,	20 "
Width of head,	10 "	Tail,	52 "
Body,	30 "		

The largest specimen, with reproduced tail, measures 50 millim. from snout to vent. Several specimens from Abd-el-Kuri.

(4) Hemidactylus forbesii.

Closely allied to *H. flaviviridis*, Rüpp. (*coctæi*, D. & B.). Snout obtusely pointed, longer than the distance between the eye and the ear-opening, once and one-third the diameter of the orbit; forehead concave; ear-opening large, oval, oblique. Body and limbs moderate. Digits moderately dilated, less than in *H. flaviviridis*, free; 11 or 12 lamellæ under the thumb, 11 or 12 under the fourth finger, 10 or 11 under the hallux, 14 or 15 under the fourth toe. Head covered with uniform granules, largest on the sides of the snout; rostral not twice as broad as deep, notched and cleft above; nostril pierced between the rostral and three small scales; first upper labial sometimes entering the nostril; 10 or 11 upper and 8 or 9 lower labials; symphysial large, triangular, at least twice as long as the adjacent labials; a pair of large chin-shields, forming a suture behind the symphysial, usually flanked by a pair of much smaller shields. Back covered with minute granular scales, among which slightly enlarged round tubercles may be irregularly scattered; ventral scales slightly larger, much smaller than in *H. flaviviridis*, juxtaposed or sub-imbricate. No præanal or femoral pores. Tail moderately depressed, tapering to a fine point, covered with very fine small smooth scales, and a few scattered pointed tubercles on its basal part; no regular series of transversely enlarged lamellar plates on the lower surface. Pale greyish above, with rather indistinct brown spots and marblings on the head and body, and cross-bars on the tail; white beneath.

Total length,	198 millim.	Fore limb,	36 millim.
Head,	24 "	Hind limb,	45 "
Width of head,	17 "	Tail,	115 "
Body,	59 "		

Numerous specimens from Abd-el-Kuri.

(5) Hemidactylus pumilus.

Head elongate, nearly twice as long as broad; snout rounded, longer than the distance between the eye and the ear-opening, once and a half the diameter of the orbit; forehead slightly concave; ear-opening small, oval. Body and limbs moderate. Digits short, free, with very short distal joint, moderately dilated; inner digits with sessile claw; 4 lamellæ under the inner digits, 6 under the fourth finger, 7 or 8 under the fourth toe. Head covered with uniform granules, which are larger on the snout; rostral subtetragonal, nearly twice as broad as deep, with median cleft above; nostril pierced between the rostral and four small scales; 8 or 9 upper and 6 to 8 lower labials; symphysial triangular, twice as long as the adjacent labials; four chin-shields, inner pair largest and forming a suture behind the symphysial. Body covered above with fine granules intermixed with small round, or oval, feebly keeled tubercles, disposed irregularly. Ventral scales small, cycloid, imbricate, smooth. Male with an angular series of 5 or 6 præanal pores. Tail cylindrical, tapering, covered with small flat scales, above with transverse series of pointed tubercles; no transversely enlarged scales below. Pale brown or buff above, with or without small brown spots; a dark brown streak on each side of the head, passing through the eye; white beneath.

Total length, . .	53 millim.	Fore limb, . .	7 millim.
Head, . . .	8 "	Hind limb, . .	11 "
Width of head, .	4·5 "	Tail, . . .	27 "
Body, . . .	18 "		

Several specimens from Sokotra (Dahamis, 350 feet, and Jena-agahan, 1200-2500 feet).

Parachalcides, *gen. nov.*

Allied to *Chalcides*, Laur., and *Sepsina*, Bocage. Palatine bones not meeting on the middle line of the palate, which is toothless. Teeth conical. Eyelids developed. Ear distinct. Nostril pierced in the rostral, bordered by a supranasal and the first labial; præfrontals and frontoparietals absent. Body much elongate; limbs short.

(6) Parachalcides socotranus.

Snout short, obtuse, not projecting beyond the labial margin; eye moderate; lower eyelid with a transparent disk; ear-opening small. Frontal more than twice as long as the frontonasal, longer than broad, broadest behind, angularly notched on each side by the first supraocular; interparietal nearly as long as the frontonasal; five supraoculars, second largest; no postnasal; first upper labial nearly as deep as the rostral; fourth upper labial entering the orbit. 24 smooth scales round the middle of the body, subequal in size. Limbs short, pentadactyle; the fore limb, stretched forwards, does not quite reach the ear; hind limb a little longer than the head; third finger longest; fourth toe a little longer than third. Tail thick, cylindrical. Reddish brown above, each scale with a black spot; sides blackish, or closely spotted and dotted with black; yellowish white beneath, uniform or dotted with black.

Total length, . .	118 millim.	Fore limb, . .	7 millim.
Head, . . .	10 "	Hind limb, . .	11 "
Width of head, .	6 "	Tail, . . .	58 "
Body, . . .	50 "		

Numerous specimens from Sokotra (Dahamis, 350-1000 feet; Jena-agahan, 1200-2500 feet; Homhil, 1500-2500 feet; Adho Dimellus, 3500-4500 feet).

(7) Glauconia filiformis.

Very closely allied to *G. macrorhynchus*, Jan, with which it agrees in the very prominent hooked snout, the number and arrangement of the head shields, and the extremely slender form. It differs in the more pointed snout, and in the rostral shield not extending so far back as the level of the eyes. 14 scales round the body. Diameter of body 100 to 140 times in total length, length of tail 13 times. Caudal spine small. Flesh-coloured, each dorsal scale with a pale brown spot.

Total length, 155 millim.

Four specimens from Sokotra (Dahamis, 350 feet; Jena-agahan, 1200-2500 feet; and Homhil, 1500-2500 feet).

(8) Glauconia longicauda.

Snout pointed, strongly projecting, slightly hooked; supraocular present; rostral moderately large, not extending to the level of the eyes, its upper portion a little longer than broad; nasal completely divided into two, the lower part very small; ocular bordering the lip, between two labials, the anterior of which is very small; five lower labials. 14 scales round the body. Diameter of body 40 to 48 times in the total length; length of tail 5 to 7 times. Caudal spine strong. Brown above, white beneath.

Total length, 170 millim.

Numerous specimens from Sokotra (Dahamis, 350 feet; Jena-agahan, 1200-2500 feet; Homhil, 1500-2500 feet).

III. Descriptions of the New Species of Scorpions, Centipedes, and Millipedes.

By R. I. Pocock.

Scorpiones (Scorpions).

Heteronebo, *gen. nov.*

Genus of the *Diplocentrini*, with the *ocular tubercle* shallowly sulcate or entire. *Hand* flat above, with strong external keel and weak median keel, or convex above and obsoletely keeled. *Tarsi* not distally lobate, the inferior angle nearly rectangular (about 85°). *Tail* without definite half-moon-shaped area at the posterior extremity of the lower surface.

Type of genus, *H. granti.*

Intermediate in character between the Arabian genus *Nebo* and the Central American and Antillean genus, *Diplocentrus*. Resembling the former in the elongation of the 5th caudal segment; the latter in the structure of its tarsi and ocular tubercle.

The two species of this new genus, each of which is represented by a couple of females, taken on Abd-el-Kuri, may be diagnosed as follows:—

(1) Heteronebo granti.

a. Hand with its upper surface nearly flat, bordered externally by a strong "finger keel" and furnished with a weaker median longitudinal keel; ocular tubercle small, not sulcate; inferior median keel obsolete on caudal segments

1-4; aculeus of vesicle strongly hooked in its distal half, vesicular tooth smaller, closer to the base of aculeus. Pectinal teeth 8. (Total length of ♀ 49 mm.)

(2) Heteronebo forbesii.

b. Hand convex above with very weak median and finger keel; ocular tubercle larger, distinctly though not deeply sulcate; inferior median crests distinct on caudal segments 1 and 2; aculeus of vesicle only lightly curved, vesicular tooth larger and much more remote from the base of the aculeus. Pectinal teeth 8-9. (Total length of ♀ 42 mm.)

(3) Hemiscorpius socotranus.

♀ **Colour.**—Olive brown above; chelæ ferruginous with crests and digits infuscate; legs olive yellow.

Carapace and tergal plates densely punctured; very finely and closely granular laterally and in the median depression; *coxæ* and *sterna* finely punctured. *Tail* about four times as long as the carapace; superior and inferior lateral keels strong and granular on all the segments; median lateral keel absent on 1st and all the following segments except the 5th, where it is posteriorly abbreviated; inferior lateral keels distinct on all segments, but weakly granular on the anterior; inferior median keel absent on segment 1, present in the posterior half of segment 2, developed on segments 3-5; intercarinal spaces finely granular; vesicle finely and coarsely punctured, finely granular. *Chelæ* very finely and closely punctured; hand nearly flat above with smooth external finger keel and median longitudinal keel. *Legs* punctured and finely granular. *Genital operculum* broadly cordate, without median suture, except in front. Pectinal teeth 10.

♂ Differing from ♀ in its more slender build, longer tail, and much more strongly granular upper surface of body and chelæ. *Carapace* as long as first and ½ the 2nd caudal segment. *Tail* about 5 times as long as carapace, its 5th segment much longer than carapace; vesicle more elongate than in ♀. Pectinal teeth 12-13.

Measurements in millimetres.—♀ Total length 38, length of tail 19·5, of carapace 5, 5th segment of tail 4·5. ♂ Total length 38, length of tail 22, of carapace 4·2, 5th segment of tail 5·2.

Locality.—Sokotra (Hadibu Plain, Jena-agahan, 1200-2500 feet; Adho Dimellus, 3500-4500 feet).

Recognisable from the Arabian *H. lepturus* by the obsoleteness of the median inferior keel on the 1st and 2nd caudal segments, etc.

(4) Butheolus insularis.

Colour.—Tail and upper side of trunk olive black, appendages rather paler; digits, distal end of legs, and ventral surface olive yellow.

Carapace granular, its ante-ocular portion sloped; terga granular, especially along the posterior margin; terga 3-6 tricostate. *Tail* incrassate to middle of 4th segment, inferior surface of segments 1-4 granular and furnished with four strong and granular keels, inferior surface of 4th and 5th smooth, impressed with large but shallow punctures, the former with very short granular keels in front, the latter granular posteriorly, its lateral keels only obsolete in front, upper surface of segments smooth; the 1st normally keeled, the 2nd with weaker and smoother keels, 3rd, 4th, and 5th punctured at the sides, the two former with scarcely a trace of lateral keels. Vesicle punctured; not geniculate beneath the aculeus. *Chelæ* with humerus granular and granularly crested above, brachium smooth, with smooth crests; hand smooth, scarcely crested; digits short, the movable being twice the length of the hand-back, shorter than the carapace, furnished with eight rows of teeth. Movable and immovable digits of *mandibles* furnished with two inferior teeth. *Coxæ* of legs granular; external surface of legs granular and carinate. Pectinal teeth, 17.

Total length, 22 mm.

Locality.—Sokotra (Mt. Raggit, 1000 feet)—a single specimen.

Recognisable at once from the Arabian and Persian *B. melanurus* by the smoothness of the upper caudal crests, etc.

Chilopoda (Centipedes).

(5) Asanada socotrana.

Closely related to *Asanada brevicornis* from North India and Burma, but recognisable by having the anal sternite transversely oblong instead of semicircularly rounded, the antennæ longer and much more attenuate, the apical segment being much longer than wide, instead of sub-spherical as in *A. brevicornis.*

Length, including anal legs, up to about 50 mm.

Locality. — Sokotra (Hadibu Plain; Dahamis, 350-1000 feet; Jena-agahan, 1200-2500 feet; Homhil, 1500-2500 feet).

Diplopoda (Millipedes).

(6) Odontopeltis grantii.

Colour of mature specimens nearly blood-red with a blackish median dorsal line; sterna, tips of keels, legs, and antennæ yellow. Dorsal surface smooth, polished, or sparsely granular posteriorly and laterally, not transversely sulcate; the anterior suture not beaded; keels of medium size, with convex anterior shoulder, obtusely rounded or obtusely angled anterior angle, acutely produced, subspiniform posterior angle; the anterior border of at least the median keels minutely dentate; posterior border of all the keels except the anterior three and the posterior two much more strongly dentate or tuberculate.

Length (♀) up to 30 mm.; (♂) 27 mm.

Locality.—Sokotra (Mt. Raggit, 1000 feet; Dahamis, 380-1000 feet; Jena-agahan, 1200-2500 feet; Homhil, 1500-2500 feet).

(7) Odontopeltis forbesii.

Larger and darker in colour than *O. granti,* dorsal surface a rich reddish brown tint, clouded with black and with narrow median black stripe; sterna reddish.

Further differing from *O. grantii* in the structure of its organs of copulation which will be figured and more fully described hereafter.

Total length (♂), 32 mm.

Locality.—Sokotra (Adho Dimellus, 3500 feet)—a single ♂ specimen.

IV. Descriptions of Three New Species of Butterflies.

By W. R. Ogilvie-Grant.

(1) Charaxes velox.

Male:—Upper surface most like that of the male of *C. cowani;* under surface like that of the female of *C. antamboulou* but darker. General colour above of both wings dark chestnut. Primaries with the brownish-black submarginal band narrower, and broken up, between the extremity of the discoidal cell and the ornamental sub-marginal row of chestnut spots, by two patches of chestnut relieved by brownish-black markings; the row of chestnut spots larger and with the margins much less sharply defined. Costal and median nervures pale green. Secondaries with the brownish-black marginal border much narrower, graduated, and terminating in a point above the first median nervule. The six spots ornamenting this border rounded and pale buff shading into pale cream on the two nearest the anal angle. Anal angle with a well-marked green patch shading into violet internally and ornamented by two rounded black dots, the same green colour strongly indicated between the 1st median and discoidal nervules by three patches. A rufous buff wedge-shaped mark arising about the middle of the costal and extending towards the apex of the discoidal cell. General colour of the under surface altogether darker and browner than in the female of *C. antamboulou*, from which it chiefly differs in the following points:—The darker basal part of the band across the disc of the primary extends to the first disco-cellular nervule; the sub-marginal spots next to the posterior angle are larger and blackish enclosing a lilac spot. On the secondaries the internal border of the spot at the anal angle, as well as of those along the hind margin, is greyish violet. Expanse, 3·05 inches.

Female:—Upper surface like that of the male, but the spots nearest the costal margin rather larger and more oblong; general colour of the under surface much greyer than that of the male, but with similar markings. Expanse, 3·35 inches.

Habitat. Sokotra, from nearly sea-level to an elevation of at least 4000 feet, where it becomes scarce.

(2) Tarucus socotranus.

Male:—Most nearly resembles the male of *T. plinius*, var. *pulchra*, the upper surface being practically alike in both, but on the under surface the pattern is quite different. The sub-marginal bands across the discal area of the primaries are continuous and run parallel to the margin. On the hinder wings this peculiarity is even more marked, the second sub-marginal band being unusually wide and uninterrupted, while the dusky band within is ornamented in the middle by a clearly defined long oval spot of blackish girdled with white. Expanse, 1·2 inch.

Female:—Much like the female of *T. telicanus*, but with the general colour of the upper surface darker sooty brown and more uniform, the lighter pattern above being inconspicuous; the black spot between the first and second median nervules oblong and margined above and below with white bands; the under surface like that of the male.

Habitat. Sokotra.

(3) Tarucus quadratus.

Male:—Most nearly allied to the South African form of *T. theophrastus*, the upper surface being very similar, but the black sub-marginal markings on the secondaries are reduced to two well-defined spots, one situated at the anal angle and the other between the first and second median nervules. The under surface of the primaries differs conspicuously in having a large subquadrate black patch situated between the costal band and the black band crossing the middle of the wing; the patch commences about the middle of the sub-median nervule and extends to the anterior angle of the discoidal cell. Expanse, 0·9 inch.

Female:—Most like the female of the South African form of *T. theophrastus*, but the row of spots along the hind margin of the secondaries is more widely edged with white; under surface like that of the male. Expanse, 0·75 inch.

Habitat. Sokotra.

V. Diagnoses of the New Species of Landshells.

BY EDGAR A. SMITH.

(1) Buliminus (Ovella) homhilensis.

Testa ovata, anguste perforata, oblique tenuiter conferteque costulata, sordide albida vel grisea, nigro-fusco strigata, strigis in anfractu ultimo ad medium interruptis, infra pallide fusco irregulariter lineata et punctulata; anfractus 7 leviter convexi, sutura vix obliqua sejuncti, superiores duo pellucidi, læves, nitentes, ultimus antice subascendens; apertura inverse auriformis, fusca, longit. totius ½ sæpe superans; labrum apertura pallidior, anguste expansum; columella superne dilatata, alba, fusco tincta, intus subdentata vel plicata. Var. testa omnino albida, hic illic fusco punctata, apertura fusca. Longit., 19½ millim.; diam., 11. Apertura, 10½ longa, 6 lata.

Habitat. Hombil, 1500-2500 feet, and Dimichiro Valley, Sokotra.

Allied to *B. riebecki*, Martens, but shorter, more ovate, with a less produced spire and a wider and differently shaped mouth.

(2) Buliminus (Ovella) dahamisensis.

Testa *B. homhilensi* similis, sed diverse colorata, albida vel grisea, strigis obliquis saturate fuscis (in anfractibus penult. et antepenult. interdum fere nigris) ornata. Longit., 18½ millim.; diam., 10⅔. Apertura, 10 longa, 5½ lata.

Habitat. Hadibu Plain, Adho Dimellus, 3500-4500 feet, and Dahamis, 350-1000 feet, Sokotra.

In form and sculpture this species resembles *B. homhilensis* and differs only in colour. Having seen a good series of both, it seems to me advisable to consider them distinct species. Some examples of the present species exhibit very little painting on the body-whorl, which is of an uniform greyish tint, but have the two preceding whorls more or less obliquely striped. Those specimens in which the markings are very faint are very like the pale variety of *homhilensis.*

(3) Buliminus (Ovella) lævior.

Testa perforata, ovata, alba, fusco strigata, strigis longitudinalibus in anfractu ultimo ad medium interruptis, infra lineis obliquis angustioribus fuscis ornata, fere lævis, lineis incrementi obliquis striata; anfractus 6-7 convexiusculi, duo apicales pellucidi, ultimus subascendens; apertura inverse auriformis, intus fusca; labrum albidum, haud expansum, albidum; columella alba, macula fusca notata, dilatata, reflexa, plicato-dentata. Longit., 14 millim.; diam. 9⅔. Apertura, 9 longa, 4 lata.

Habitat. Jena-agahan, 1200-2500 feet, Sokotra.

Differing from allied species such as *B. dahamisensis*, *homhilensis*, and *socotorensis* in the absence of distinct costulate sculpture, the surface being almost smooth.

(4) **Buliminus (Ovella) theodoræ.**

Testa fusiformi-ovata, umbilicata, oblique costulato striata, albida, strigis fuscis irregularibus punctisque picta, strigis in anfr. ultimo in medio interruptis, infra lineis obliquis tenuibus fuscis ornata; anfractus 8 lente accrescentes, convexiusculi, duo superiores læves, sordide albidi, ultimus antice leviter ascendens; apertura angusta, saturate fusca, longit. totius ½ adæquans; labrum pallidum, vix expansum; columella alba, intus fusco tincta, dentato-plicata, reflexa. Longit., 25½ millim.; diam. 11. Apertura, 12 longa, 5 lata.

This species was collected by Mrs. Theodore Bent in Sokotra. It is allied to *B. riebecki*, Martens, but is more elongate, with higher whorls and a somewhat differently shaped aperture. The body-whorl also is somewhat saccate.

(5) **Buliminus (Ovella) fusco-apicata.**

Testa ovata, supra acuminata, vix rimata, pallide grisea, ad apicem fusca, oblique tenuissime costulata; spira conica; anfractus 6, superiores duo fusci, globosi, læves, cæteri convexiusculi, ultimus subglobosus; apertura late auriformis, intus fusca; labrum incrassatum, externe haud expansum vel reflexum, pallidum, margine columellari dilatato et reflexo. Longit., 8½ millim.; diam. 6. Apertura, 4 longa, 3 lata.

Habitat. Abd-el-Kuri, 800-1500 feet.

A few darkish dots are generally scattered over the grey surface.

(6) **Buliminus (Ovella) pauxillus.**

Testa parva, ovato-conica, rimata, grisea, fusco strigata, ad peripheriam plerumque albo zonata, ad apicem obtusum fuscescens; spira conoidea; anfractus 5, superiores duo convexi, læves, fusci, cæteri convexiusculi, oblique tenuiter costulati; apertura fusca; peristoma pallidum, leviter incrassatum, marginibus callo gracili fere junctis, externo haud expanso, columellari dilatato et reflexo. Longit., 6 millim.; diam., 4. Apertura, 3 longa, 2½ lata.

Habitat. Abd-el-Kuri, 800-1500 feet.

Smaller than *B. fusco-apicata*, more strongly costulate and differently coloured. The body-whorl often has a somewhat shouldered appearance.

(7) **Buliminus (Chondrula) granti.**

Testa ovata, supra acuminata, rimata, subpellucida, dilute fusco-cornea, nitida; anfractus 5½ convexiusculi, lineis incrementi obliquis tenuissimis sculpti, infra suturam linea pellucida marginati, ultimus leviter oblique descendens, sed prope labrum subascendens; apertura inverse auriformis, dentibus duobus munita; peristoma incrassatum, album, marginibus callo gracili fere junctis, dextro vix reflexo, intus tuberculo prominente in medio instructo, columellari supra unidentato, dilatato et reflexo. Longit., 11 millim.; diam. 5½. Apertura, 4 longa, 3 lata.

Habitat. Abd-el-Kuri.

The parietal callus does not quite join the upper end of the labrum, so that a narrow sinus or slit is formed at this place.

(8) **Lithidion forbesianum.**

Testa depressa, orbicularis, late umbilicata, spiraliter costulata, lineis incrementi conspicuis obliquis subclathrata, supra dilute vel saturate fusca, infra pallidior; spira brevis; anfractus 5 convexi, sutura subprofunda sejuncti, superiores duo læves, ultimus antice descendens, infra costulis minus conspicuis quam supra, lævior; apertura fere circularis, intus fusca; peristoma album, marginibus callo tenui junctis, subcontinuis, externo leviter

expanso, columellari incrassato, minus reflexo. Diam., maj., 8 millim.; min., 6½; alt., 5.

Habitat. Abd-el-Kuri, 800-1500 feet.

Quite distinct, although very closely allied to *L. souleyetianum*, and differing chiefly in the form of the aperture and the operculum. It is extremely variable in size, ranging from 10-7 millim. in diameter.

Cast-Metal Work from Benin.

IN the *Bulletin* of the Free Museum of Science and Art of the University of Pennsylvania, for January, 1899 (Vol. II., p. 28), Mr. H. L. Roth, in an article on *Personal Ornaments from Benin*, remarks:—"Dr. Forbes (*Bulletin of Liverpool Museums*, I., p. 59), in describing the spots of a [large bronze] leopard [in the Mayer Museum, which is figured on page 58 of Vol. I.] says they are filled in with a 'yellow porcellaneous glass or enamel'; if such be the case, the Bini must have had a knowledge of the making of enamel; but I think further inquiry will prove that the insets in the leopard's spots are glass." Great care was taken to correctly describe the specimens under review in the article referred to by Mr. Roth. I have, however, again carefully inspected this very fine example of Benin art in our Museum, and am able to say that the insets in the leopard's spots were quite accurately described as "porcellaneous glass or enamel," in the usual sense of the substance being a variety of glass in various colours applied in ornament to cover a metal or pottery surface.

In the *Reliquary* also, for July, 1898, the same author, in *Notes on Benin Art*, seems to question my accuracy in describing the surface of much of the metal work in our Benin collection as being chiselled over and carefully smoothed. "With one exception," he writes, "I have failed to trace any filing. The one exception is on a Tusk-holder (?) in the possession of Miss M. H. Kingsley. The article is unfinished in so far as some circular surfaces are concerned, and here what may possibly be rasp marks, are observable, but they may be marks in the castings left rough because the original idea was to enchase them. Even in the most highly finished objects I have not been able to find any such marks, and it appears to me the finished appearance is due to the excellence of the casting . . .; so well are the Bini objects cast that there is apparently no other finishing." I am now able to state that I have re-examined the specimens to which Mr. Roth here refers, and can only confirm what is stated in the paper he has quoted from—that "all four figures have been most accurately finished with the punch and chaser, and their surface finally very carefully smoothed." Indeed, where the work has not been so treated, but remains as it came out of the mold, it is often far from smooth.

Mr. Roth has an interesting article in the *Halifax Naturalist*, for June, 1898, in which he describes and figures, among several Benin art objects, two which have been added to the Mayer collection since the publication of my paper in this *Bulletin* (Vol. I. p. 49). They were purchased from Mr. F. N. Roth, who was one of the medical officers of the punitive expedition against Benin in 1897. Of the first of these Mr. Roth writes:—

"It will doubtless be remembered that when the punitive expedition arrived in Benin city, several pits were found full of dead and dying human beings, most of whom had been sacrificed as a fetish to prevent the entry of the British. From one of these pits there was taken, amongst others, a native carrier, a Kru boy, who had been captured at the massacre of Vice-Consul Phillip's party. This lad was found to be in a very emaciated condition, and had evidently been in the pit some days. He was a mass of caked blood, which took a considerable time to remove; and when my brother, Mr. Felix N. Roth, District Medical Officer at Warri, who had charge of the wounded, examined him, he found three peculiarly shaped holes in the boy's head—one through each cheek, and one deep into the back of the head. The wounds appeared to have been made by a thin, blunt instrument, somewhat like an engineer's chisel, but never having seen an instrument which would exactly fit such mutilations, he was much puzzled as to what could have been this murderous weapon. The boy could offer no explanation, except that he and many others had been killed (!) so that the British should not enter the city —that he had been hit with a piece of iron, and then thrown for dead into the pit, where he had been five days. . . . Shortly afterwards, in examining one of the altars in the King's compound, a British officer found the peculiar instrument here depicted [on Fig. 1]; and on showing it to my brother, the latter quickly saw that this must have been the club with which some of the wretched captives had been sacrificed. It was thickly encrusted with blood, and on being cleaned, showed signs of very great wear. A similar club was found in another compound, but with bent prongs and broken handle. On making enquiries, my brother learned that the two cup-like arrangements were to collect some of the blood which flows from the victim, which was then sprinkled over the bronze heads, carved tusks, or other emblems of the worship to conciliate the presiding spirits." *

"The second article is a brass box [on Fig. 3] in the form of a shingled house, not remarkable for either beauty of design or shape, there being little scope for a workman to show his skill on such homely articles as the shingles of a house, while the lower portion of the casket is in a quite unfinished state. In this lower portion we notice here and there are strips of copper evidently cast in when the article was made. Similar pieces of iron and copper are not unfrequently met with in other castings from Benin; the object of this arrangement is, however, not known to us. If the box has no claim to elegance, it, at least, tells us something about the city when it was first visited by Europeans. When the brothers De Bry, in their *India Orientalis*, published, in 1597, the first description of Benin city, they gave an illustration of the houses topped with curious square turrets, drawn, not from an actual view, but from a verbal description of the city. The artist had evidently mistaken the nature of these turrets, and it is probable that his authority meant such a turret as is depicted on the above illustration. In the British Museum there is a pillar plate (plaque) from Benin showing a similar turret to the one on the box. The style of roofing is very different in the present day, for, as my brother informs me, the people use palm and other leaves, as well as large sheets of Muntz metal, instead of shingles. The serpent zigzagging down the roof is similar to those depicted on the casket. The Dutch traveller Nyendael, who twice visited Benin, writing in 1702, says of one of the city walls, that one corner 'is adorned at the top with a wooden turret sixty or seventy feet high; at the top of all is fixed a large copper snake, whose head hangs downwards. This serpent is very well cast or carved, and it is the finest I have seen in Benin.' From the last statement we may conclude there were several such snakes. The members of the punitive expedition state there is still a large copper serpent in the attitude above described, to be seen on the roof of the King's compound in Benin. The serpents are not worshipped, but are supposed to be the abodes, more or less temporary, of the members of a certain class of spirits, being, in fact, guardian spirits of the houses. . . ." *H. O. F.*

---

* *Cf.* Figures on pp. 60-63 in *Bull. Liverp. Mus.* Vol. I.

Catalogue of the Coraciæ: Cuckoo-Rollers (Leptosomatidæ), Rollers (Coraciidæ), Motmots and Todies (Momotidæ), Kingfishers (Alcedinidæ), and Bee-eaters (Meropidæ); and of the Trogons (Trogonidæ), in the Derby Museum.

By Henry O. Forbes and Herbert C. Robinson.

Note.—*The arrangement and nomenclature followed in this Catalogue are substantially those adopted in the 'Catalogue of Birds in the British Museum,' Vol. XVII., by Dr. Bowdler Sharpe and Mr. W. R. Ogilvie-Grant. All the species described since the publication of that volume, known to us up to April, 1899, are enumerated, and have their original (or translated) diagnoses inserted. The names of species desiderata to our collection are printed in Grotesque type, thus*—cæruleiceps.

The specific name is followed by the number of specimens *of it in the Museum, then by the sex of each, and lastly the* locality *whence obtained, with the* month of capture, *wherever these data are known. Type specimens are marked* **T.**

LEPTOSOMATIDÆ.

LEPTOSOMA, *Vieill.*

discolor (*Herm.*). Seven. 5 ♂ (1 jr.), 2 ♀. Madagascar (Mohambo).

discolor, *subsp.* **gracile,** *Milne-Edw. & Oust.* Two. ♂, ♀. Great Comoro Island.

CORACIIDÆ.

BRACHYPTERACIINÆ.

BRACHYPTERACIAS, *Lafr.*

leptosomus (*Less.*). Two. ♂. Madagascar, April.

GEOBIASTES, *Sharpe.*

squamigera (*Lafr.*). Two. ♀. Madagascar (Mointenbate, May).

ATELORNIS, *Pucher.*

pittoides (*Lafr.*). Four. Madagascar (South Betsileo, Ankafana, March).

crossleyi, *Sharpe.* One. Madagascar.

cæruleiceps, *Dresser, Mon. Corac.* p. 98 (1893).

Atelornis sp. *Rothsch. Nov. Zool.* ii. p. 479 (1895).

A specimen, supposed by Mr. Dresser to be immature, is described as resembling "*A. crossleyi* but much duller in tone of plumage, the rich bay colour being replaced by dull rufescent ochraceous, the black and white patch on the throat is wanting, but there are one or two new feathers which are nearly white, showing that it would probably be assumed with the adult dress; the upper parts are duller than in *A. crossleyi* and the crown is dull rufous brown varied with cobalt blue, the new feathers being of this latter colour; the bluish-white spot on the wing-coverts is apparent, though but slightly developed. Total length about 9 inches; culmen, 1·15; wing, 3·55; tail, 4·6; tarsus, 1·65." (*Dresser*). *Habitat.* Central Madagascar (Imerina).

URATELORNIS, *Rothsch.*

chimaera, *Rothsch. Nov. Zool.* ii. p. 479 (1895); *id. op. cit.* iii. pl. ii. (1896).

"Upper parts of head and neck, back, rump, and two central pairs of rectrices dull rufous brown, variegated with greyish and blackish brown, somewhat in the way of a goat-sucker. Third pair of rectrices from the centre, with the apical fifth, pale sky blue; the rest like the middle ones; the outer three pairs entirely uniform sky blue. Scapulars, smaller upper wing-coverts, and innermost secondaries of the same colour as the back. Larger upper wing-coverts sky blue. Primaries and some of the secondaries blackish, with white bands bordered with sky blue, and brown towards the tip. Ear-coverts, sides of head, and neck reddish chocolate, variegated with black and white; an irregular white line along the sides of the neck. Under surface from chin to vent and under tail-coverts white, with a broad, black band across the chest, as in *Atelornis pittoides*. Under wing-coverts white, changing to pale sky blue towards the outer edge. Bill black, feet and legs brown. Total length about 18 inches; culmen, 1·375 inch; wing, 4·4; tail, 12; tarsus, 1·9; middle toe without claw, 1 inch." (*Rothschild*). *Habitat.* Madagascar.

CORACIINÆ.

CORACIAS, *Linn.*

indicus, *Linn.* Twelve. ♂. Northern India (Umballa, November; Muddapur, November). Southern India (Nellore; Madras; Ootacamund, February).

affinis, *McClell.* Three. ♂. Sikkim, January. Assam.

garrulus, *Linn.* Twenty-one. 5 ♂, 2 ♀. Orkneys. Scotland (Dumfrieshire, Tynwald). Algeria (Koliah Forest, May). Tunis, March. Malta, April. Palestine (Jordan Valley, October; Mt. Tabor, April). Syria (Aleppo, May; Hamath, May; Issa, June). India (Himalayas, ? Gilgit (*Littledale Coll.*)). South Africa (Orange Free State, Kroonstadt, December; Trans Kei).

abyssinicus, *Bodd.* Seven. 2 ♂, ♀ (jr). West Africa (Senegal; Gambia, Bathurst, August). Central Africa (White Nile). Abyssinia. [Mozambique].

The specimen from the last-mentioned locality, which is probably erroneous, was collected by Salt in 1812 (probably in Abyssinia), and is referred to by Dr. Latham as *C. bengalensis*, Lath. in Salt's Voyage Abyss. Append. iv. p. 46 (1814); Stanley, t.c. p. 53; Lath. Gen. Hist. iii. p. 73 (1822). The bird, however, does not at all agree with Dr. Latham's description in the General History of Birds.

lorti, *Shelley.*

caudatus, *Linn.* Eight. 2 ♂ (1 jr.), ♀. East Africa (Victoria Nyanza, Nassa; Kikombo, May; Zanzibar; Newala, Rovuma R.; Mozambique). South Africa (Buffel's Kraal, May).

spatulatus, *Trimen.*

weigalli, *Dresser.* One. South-East Africa (Newala, Rovuma R.).

Although Dr. Sharpe has included this species in *C. spatulatus* (Cat. Birds Brit. Mus. xvii. p. 23), it is now generally recognised that the species is distinct. The original type has been lost, the specimen above recorded being that referred to by Dr. Sclater (Bull. B.O.C. xv. p. 23, 1894); id. Ibis, 1894, p. 299; Tristram, t.c. p. 320).

T nævius, *Daud.* Six. ♂, ♀. West Africa (Bathurst, Gambia, July). Kordofan, July. Abyssinia. East Africa (Kikombo, August).

No. 6 from Abyssinia, collected by Salt in 1812, is the type of *C. afra*, var. Lath. in Salt's Voyage Abyss. Append. iv. p. 46 (1814); Stanley, t.c. p. 53; Lath. Gen. Hist. iii. p. 81 (1822).

The collector himself states that the bird came from Mozambique, but Dr. Latham mentions Abyssinia in the General History. As in the preceding case the bird does not agree with the published description of *C. afra*, var.

It seems curious that Latham should have regarded this bird as so nearly allied to his *Coracias afra*, which, of course, is an *Eurystomus*, and one is somewhat inclined to doubt if his name for that species should really be used.

mosambicus, *Dresser.* Five. 2 ♂, ♀. South Africa (Damaraland, Swakop R., April; Orange Free State, Kroonstadt).

temmincki (*Vieill.*). Four. North Celebes.

No. 3, purchased by Lord Derby at the sale of the Bullock Collection, was brought to Europe by La Perouse.

cyanogaster, *Cuv.* Three. ♂. West Africa (Gambia; Ashantee).

EURYSTOMUS, *Vieill.*

glaucurus (*P. L. S. Müll.*). Ten. 3 ♂, 3 ♀, juv. Madagascar (Mohambo, November).

afer (*Lath.*). Six. ♂, 1 jr. West Africa (Gambia; Accra, April). Central Africa (Nyassaland, Zomba, August). South-East Africa (Newala River).

afer, *subsp.* **rufobuccalis,** *Rchnw. J.f.O.*, 1892, p. 57. Two. Central Africa (Uganda, Busogo).

♀ “Differs from the normal colouration of the species considerably in having the sides of the head plain, reddish brown, without any tinge of violet like the crown; the two central tail feathers are, excepting the black terminal portion, washed with reddish brown on a black ground; the upper tail-coverts are only blue on the sides, the central ones being reddish brown. . . . . .” (*Reichenow, fide Dresser, Mon. Corac.* p. 60). *Habitat.* Uganda (Manjonjo).

Captain Shelley does not recognise this subspecies in his “Birds of Africa,” and Mr. Dresser (l.c.) includes it with a query under the synonyms of *E. afer*, though the specimen he figured, apparently from Abyssinia, bears out Dr. Reichenow's remarks concerning the sides of the head.

In our specimens from Uganda the purple colouration of the sides of the head, though perhaps just perceptible, is very much less marked than in any of the others; the lower row of upper tail-coverts is blue all round, though the upper ones are mixed with chestnut in the centre; the whole of the centre pair of tail feathers, except the upper portion of the shaft region, is blackish brown, with a suggestion of brownish grey towards the edges, not reddish brown as in Dr. Reichenow's description. The black terminal band of the outer tail feathers is more extensive, and the blue subterminal one is less so, and darker in colour than in the specimens from other localities.

It is impossible to say to what form the specimen from Newala, recorded under *E. afer*, really belongs, as it is an immature bird with greenish blue under surface.

gularis, *Vieill.* Six. 1 jr. West Africa (Axim; Wassaw, Erriemill; Cape Coast Castle).

An immature specimen from Cape Coast Castle differs from the others, and from Dresser's figure and description of the young bird, in having the upper throat and breast chestnut of the same colour as the upper surface, which is somewhat duller than in the adult. The bird seems to attain its adult plumage by a direct change of colour in the feather, as some of the greenish lower breast feathers have chestnut shaft-stripes, while the chestnut feathers immediately above these have greenish tips and edges.

orientalis (*Linn.*). Seventeen. 2 ♂, 2 jr. Malay Peninsula (Pahang, January; Penang, April; Singapore). Sumatra. Borneo (Banjermassim; Labuan, October, December). Talaut Islands (Lirung, May). Philippine Islands. China.

We have followed Mr. Dresser (Ibis, 1891, pp. 99-102) and Dr. Blanford (Faun. Brit. Ind. Aves, iii. p. 107, 1895), in not accepting *E. calonyx*. According to Dr. Sharpe, three specimens from China, collected by Fortune, should belong to this form. Of these specimens one is perfectly adult and two are immature, as shown by the blackish bill, and the absence of the purplish blue gular spot. The wing of the adult bird is 7·7, and it has no blue whatever on the terminal half of the tail, exactly agreeing with the male specimen from Sumatra, collected by Wallace. The immature specimens have the wing 7·35 and 7·5, and the outer web of the tail feathers deep ultramarine blue and tipped with greenish. This is the case, but to a less extent, with a specimen from Labuan collected in October, which is not quite adult, and which has the wing only 7 inches. The other specimen from Labuan collected in December, which is quite adult, has the wing 7·5, and no blue on the terminal portion of the tail. An adult specimen from

Singapore, which, we presume, would be considered typical *E. calonyx*, has the wing 7·5 and the whole of the terminal portion of the tail markedly washed with deep ultramarine blue. As regards the colour of the outer secondaries, which is also made a diagnostic character by Dr. Sharpe, the Singapore specimen has the outer webs uniform deep ultramarine blue; the Labuan specimens collected in October and December have a narrow edging of the same colour; the adult Chinese specimen has none whatever, and it is narrower and paler on one of the immature Chinese specimens though much more marked in the other. When such variation is observable even in a limited series it seems advisable, at any rate for the present, to include *E. calonyx* and *E. lætor* under *E. orientalis*.

Messrs. Meyer and Wiglesworth (Birds of Celebes i. p. 312), even include *E. pacificus* under the same heading.

pacificus (*Lath.*) (= *E. orientalis* (Linn.), *spm. a*, Tristr. Cat. Coll. Birds, p. 99, and *E. azureus*, Gr. l.c.). Thirteen. 4 ♂, ♀, juv. Lombok. Ceram. Halmaheira (Dodinga, April). Northern Australia (Port Essington, November). Eastern Australia (Moreton Bay; New South Wales, November). Norfolk Island. Tasmania.

crassirostris, *Sclat.* One. South-East New Guinea (Fly River).

solomonensis, *Sharpe* (= *E. crassirostris*, Sclat. *spm. b*, Tristr. Cat. Coll. Birds, p. 99). Two. Solomon Islands (Guadalcanar, March; Bugotu).

This species has recently been recorded from New Hanover (*cf.* Hartert, App. Cayley Webster's "Through New Guinea," p. 371, 1898).

azureus, *G.R.Gr.*

MOMOTIDÆ.

MOMOTINÆ.

BARYPHTHENGUS, *Cab. & Heine.*

martii (*Spix*). Two. Ecuador. Peru.

Following Messrs. Salvin & Godman (Biol. Centr. Amer. Aves, ii. p. 462), we have not adopted the generic term *Urospatha*, Salvad, for this species.

ruficapillus (*Vieill.*). Three. Brazil.

PRIONORNIS, *Sclat.*

T **platyrhynchus** (*Leadb.*). Two. "Borders of Brazil and Peru."

No. 2, purchased from Leadbeater in 1838, may very possibly be the Type of the species; it is also the Type of *Crypticus martii*, Bp. (P.Z.S. 1837, p. 119).

carinatus (*Du Bus*).

EUMOMOTA, *Sclat.*

superciliaris (*Sandbach*). Five. ♀. Guatemala (San Geronimo, December; Coban; Zacapa).

MOMOTUS, *Briss.*

momota (*Linn.*). Three. Demerara.

parensis, *Sharpe;* bartletti, *Sharpe;* venezuelæ, *Sharpe.*

subrufescens, *Sclat.* Four. Peru (Sarayaçu). Bolivia.

nattereri, *Sclat.* Two. Bolivia.

microstephanus, *Sclat.;* argenticinctus, *Sharpe.*

æquatorialis, *Gould.* One. Peru, November.

lessoni, *Less.* Four. ♂. Honduras. Guatemala (Volcan de Fuégo, at 6000 ft., August; Between Guatemala and Sonsonaté).

It is difficult to decide to what species the specimen from Honduras should be assigned; the general colour of the crown approaches *M. cæruleiceps*, but the centre is black like *M. lessoni;* the colour of the under surface is more rufescent than either *M. lessoni* or *M. cæruleiceps*, in this respect approaching *M. swainsoni.*

swainsoni, *Sclat.* Five. Tobago.

cæruleiceps, *Gould.* Three. Mexico.

mexicanus, *Swains.* Two. Mexico.

mexicanus, *subsp.* **saturatus,** *Nelson, Auk.* xiv. p. 49 (1897).

"Contrasted with typical *M. mexicanus* the new form is larger and has the crown deeper rufous; the greens of the back are deeper and more olive; the rufous of the crown and neck extends farther over the shoulders, and the black area of the ear-coverts is more broadly edged with blue. The Type measures as follows: Wing, 126; tail, 200; culmen, 44; tarsus, 29. A typical male of *mexicanus* measures: Wing, 116; tail, 170; culmen, 39; tarsus, 25." (*Nelson*). *Habitat.* "Pacific coast district of Mexico from Mazatlan, Sinaloa, to Tonala in Chiapas."

One. ♂. Mexico (Terro Tepic, Tuxpan, May).

Our specimens agree well with the foregoing description.

T **castaneiceps,** *Gould.* Two. Guatemala (Zacapa; Golan ? *lege* Gualan).

Co-types of the species.

The former of these specimens collected by Bates and the latter by Delattre, are referred by Sclater (P.Z.S. 1857, p. 254) to *M. mexicanus;* this, however, is erroneous, as these specimens are the ones mentioned by Gould, in his description of the species (P.Z.S. 1854, p. 154); and the only specimens of *M. mexicanus* in the Derby Collection have no specific locality attached.

ASPATHA, *Sharpe.*

gularis (*Lafr.*). Two. ♀. Guatemala (Volcan de Fuégo, September).

HYLOMANES, *Licht.*

momotula, *Licht.* Four. Mexico. Guatemala (Escuintla; Choctum, January).

TODINÆ.

TODUS, *Linn.*

viridis, *Linn.* Seven. ♂, ♀. Jamaica.

subulatus, *G.R.Gr.* Five. San Domingo (Samana).

multicolor, *Gould;* pulcherrimus, *Sharpe;* hypochondriacus, *Bryant.*

ALCEDINIDÆ.

ALCEDININÆ.

PELARGOPSIS, *Gloger.*

melanorhyncha (*Temm.*). One. Celebes.

melanorhyncha, *subsp.* dicrorhyncha, *Meyer & Wiglesw. Abh. Mus. Dresd.* No. 2, p. 12 (1896); *Hart. Nov. Zool.* iv. p. 163 (1897); *Meyer & Wiglesw. B. Celebes* i. p. 271, pl. ix. *Upper fig.* (1898).

"Similar to *P. melanorhyncha*, but with more or less of the culmen and base of the maxilla and most of the under mandible red, the rest black; size somewhat larger. Wing, 151-161; tail, about 100; bill from nostril, 67-73; tarsus, about 17 mm." (*Meyer & Wiglesworth*). *Habitat.* Islands of Peling and Banggai.

melanorhyncha, *subsp.* eutreptorhyncha, *Hart. Nov. Zool.* v. p. 128 (1898).

"Bill black, with smaller red spot at base of maxilla, sometimes obsolete, and with smaller red space at base of mandible, sometimes varying towards a black bill." (*Hartert*). *Habitat.* Sula Mangoli.

amauroptera (*Pears.*). Three. Assam.

No. 1 from Assam is the specimen figured by Dr. Sharpe (Monogr. Alced. p. 97, pl. xxx.).

leucocephala (*Gm.*). Two. Borneo (Baram; Banjermassim).

Mr. Hartert has recorded this form from Mindoro (J.f.O. 1891, p. 296), though Dr. Sharpe states that it is confined to Borneo and ? Palawan.

leucocephala, *subsp.* intermedia, *Hume.*

Dr. Blanford states (Faun. Brit. Ind. Aves, iii. p. 129), that this subspecies is indistinguishable from the typical Bornean form.

T **leucocephala,** *subsp.* **gouldi,** *Sharpe.* One. Philippine Islands (South Luzon).

Co-type of the species (Ibis, 1870, p. 63).

leucocephala, *subsp.* **gigantea,** *Wald.* (= *P. gouldi*, Sharpe, Tristr. Cat. Coll. Birds, p. 91). Two. ♂ jr., ♀. Philippine Islands (Leyte, Amparo, August; Basilan, May).

gurial (*Pears.*). Nine. ♂. Central India (Khandeish; Jubbulpur; Salkerei, January). Southern India (Nellore). Ceylon.

gurial, *subsp.* **malaccensis,** *Sharpe.* Seven. ♂, 2 jr. Malay Peninsula (Pahang, April).

gurial, *subsp.* floresiana, *Sharpe.*

According to Hartert (Nov. Zool. iii. pp. 565, 599) "*Pelargopsis sasak*, nov subspec" Vorderman, Natuurk. Tijdschr. Nederl.-Ind. liv, from Lombok, is in all probability the young of the species.

gurial, *subsp.* **burmanica,** *Sharpe.* Two. Andaman Islands. Burmah.

Dr. Blanford (tome cit. p. 130) does not recognise this subspecies.

gurial, *subsp.* **fraseri,** *Sharpe.* Seven. ♂, ♀, jr. Malay Peninsula (Malacca). Sumatra (Lampongs, Gunung Tetahan; Palembang, Lake Ranau, February). Java.

CERYLE, *Boie.*

rudis (*Linn.*). Twenty-nine. 10 ♂, 11 ♀, 5 jr. Palestine (Gennesareth, March, May; Sea of Galilee, February, March; Raboth Ammon, March). West Africa (Senegal; Gambia, Bathurst, September; Lagos; Ambriz River). North Eastern Africa (White Nile). East Africa (Ribé). South Africa (Transvaal: Potchefstroom, September; Port Natal; Bechuanaland).

rudis, *subsp.* **varia** (*Strickl.*). Nine. 3 ♂, 6 ♀. Northern India (Calcutta; Mhow, January). Southern India (Nellore). China (Amoy, February, December).

lugubris (*Temm.*). Nine. 6 ♂, 3 ♀. Northern India (Kumaon; Dehra Dhoon; Simla, December). Japan (Yokohama, April; Chiusenze, April).

maxima (*Pall.*). Eleven. 4 ♂, 7 ♀ (1 jr.). West Africa. South Africa (Transvaal: Rustenberg, September; Cape of Good Hope).

maxima, *subsp.* **sharpii,** *Gould.* Two. 2 ♀. West Africa (Gold Coast: Bossumpra River; Gaboon, Ogowe River).

The specimen from the Gold Coast collected by Mr. H. J. Ussher seems to be intermediate between this subspecies and the typical form from South Africa, there being a very much less amount of white spotting and barring on the upper surface, though more so than in the Gaboon specimen.

torquata (*Linn.*). Twelve. 3 ♂, 7 ♀, 2 jr. Central America ("River St. John"; Honduras, Belize River). Brazil (Huallago). Peru (Sarayaçu).

torquata, *subsp.* **stellata** (*Meyen*). Two. ♂, ♀ juv. Chili (Straits of Magellan, Tom Bay, March).

torquata, *subsp.* stictipennis, *Lawr.*

alcyon (*Linn.*). Thirteen. 7 ♂ (3 jr.), 4 ♀, 2 jr. Canada (Nova Scotia; Montreal). United States (Texas, San Antonio). Bermuda. Jamaica. Honduras (Belize River).

amazona (*Lath.*). Ten. 6 ♂ (1 jr.). Honduras. New Granada. Brazil. Peru (Sarayaçu). Bolivia.

americana (*Gm.*). Nineteen. 11 ♂, 8 ♀ (1 jr.). Brazil (Para). Bolivia.

americana, *subsp.* **cabanisi** (*Tschudi*). Four. ♂, 3 ♀. Peru. Brazil?.

americana, *subsp.* **septentrionalis,** *Sharpe.* Ten. 6 ♂, 3 ♀. Honduras (Belize). Mexico. Guatemala (Coban, November).

inda (*Linn.*). Eleven. 6 ♂, 5 ♀. Surinam. Brazil (Para).

superciliosa (*Linn.*). Thirteen. Panama. Surinam. Brazil (Para).

superciliosa, *subsp.* **stictoptera,** *Ridgw.* Five. 4 ♂, ♀. Mexico. Honduras. Guatemala (Yzabel).

Messrs. Godman & Salvin (Biol. Centr. Amer. Aves, ii. pp. 478, 479) do not recognise this subspecies. The specimen from Panama, enumerated under *C. superciliosa typica,* seems perfectly intermediate between specimens from Mexico and others from Para.

æquatorialis, *Sharpe.*

ALCEDO, *Linn.*

ispida, *Linn.* Fifty-five. 3 ♂, 5 ♀, 2 jr. England (Durham; Greatham, February; Norfolk, Norwich, February; near London; Kent, Boxley; Hants, Mottisfont, January, May). Greece (Pylos, February). Palestine (Jericho, January). Northern India (Kumaon). Nepaul. Southern India (Nellore). Ceylon. Malay Peninsula (Penang). Borneo (Baram, May; Bonguey). China (Canton; Hong-Kong; Amoy, May; Chusan). Japan (Nikko, April; Soguzima, December).

ispida, *subsp.* taprobana, *Kleinschmidt, Ornith. Monatsber.* ii. p. 126 (1894). *Rothsch. Nov. Zool.* iii. p. 550 (*foot note*) (1896).

"From Ceylon comes *Alcedo ispida bengalensis,* Gm., a smaller form of our kingfisher, often of such an unusual colouration that I cannot but describe it as a distinct form, which does not agree with the characters of any described species or subspecies; neither in the British Museum Catalogue or in Sharpe's 'Monograph of the Kingfishers,' nor in any other literature at my disposal, can I find any remarks on the subject. The above-mentioned bird has the upper surface of an extraordinary bright blue, therein resembling *Alcedo ispidoides,* Less. The points of difference may be best characterised by comparison with the allied forms. The colours of the kingfisher, as is well known, appear differently when viewed by direct and reflected light; calling the tint of the upper surface when viewed by direct light (eye between source of light and the object) I., and the tint by reflected light (object between the light and the eye) II.:—

"Var. *taprobana* I. = *bengalensis* II.
" " II. = *meningting* I.
" " I. = *ispidoides* I.
" " II. = " II.

"From *A. ispidoides,* Less. var. *taprobana* differs in having the bill feebler, and in the brown mark on the side of the head; from *A. ispidoides floresiana,* Sharpe, in the size of this mark; the last-named subspecies stands also between *taprobana* and *ispidoides.*

"It would be very interesting to ascertain whether the same is the case as regards the size of the bill; unfortunately I only know *floresiana* from description. That *taprobana* is not the very adult plumage of *bengalensis,* two young birds, one in my collection, and the other in the Berlin Museum show; in them the upper surface, by direct and reflected light, is dull blue and the under surface bright rust red. In *bengalensis* the opposite is the case to *taprobana* and *ispida,* in that there is most white on the young plumage birds. In very old *taprobana* in my collection, the feathers of the shoulder are edged with bright blue.

"This form seems confined to Ceylon; intermediate forms between it and *bengalensis* occur, yet specimens of *bengalensis* from Ceylon appear always distinguishable by the brighter colouration on the angle of the wing." (*Kleinschmidt*). *Habitat.* Ceylon.

There are two specimens of an *Alcedo* from Ceylon which we have referred to *A. ispida bengalensis,* if that form is to remain distinct. One of them appears identical in the colouration of the upper parts with specimens from Nepaul and Southern India, though the brighter tips to the upper wing-coverts are perhaps somewhat more marked. The other specimen is of a rather bluer tinge above, though it can be matched by specimens from Borneo; it is almost exactly the same colour as a specimen of *A. ispidoides,* which, however, is evidently immature, as shown by the dusky tinge on the breast. The adult birds of *ispidoides* are of a very much more intense blue above, the same as *A. ispida floresiana.* Is it possible that the moist uplands of Ceylon have caused some slight differentiation between the birds inhabiting them and those of the drier lowlands?

ispida, *subsp.* **ispidoides,** *Less.* Three. 2 ♂, ♀. New Britain (Blanche Bay, June; Ferguson Bay, August).

ispida, *subsp.* **floresiana,** *Sharpe.* One. ♂. Flores (Waingapo, September).

semitorquata, *Swains.* Six. ♂. South Africa (Transvaal: De Kaap, Fig Tree Creek, May; Cape of Good Hope).

euryzona, *Temm.* Three. ♂, ♀. Sumatra. Borneo (Kinabalu (3000 ft.), March).

grandis, *Blyth.* One. India (Himalayas).

guentheri, *Sharpe.* Four. West Africa (Gold Coast: Lagos; Bonny; Gaboon).

quadribrachys, *Bp.* One. West Africa (Gold Coast).

meninting, *Horsf.* Six. ♂ jr, ♀. Java. Borneo (Baram, Sarawak).

beavani, *Wald.* One. Burmah (Tonghoo).

beryllina, *Vieill.* Six. ♂. Java (Sourabaya).

No. 2 from Sourabaya is the specimen figured by Dr. Sharpe (Monogr. Alced. p. 31, pl. ix.).

CORYTHORNIS, *Kaup.*

cristata (*Linn.*). Fifteen. Madagascar (Moumangaka, April; Mohambo, July; St. Augustine's Bay).

cyanostigma (*Rüpp.*). Twenty-three. 2 ♂, ♀, 6 jr. North-Eastern Africa (Ghaba Shambé, July). West Africa (Gambia, Bathurst, January, August, November; Cape Coast Castle; Lagos). South Africa (Potchefstroom, March; Kroonstadt, January; Bechuanaland).

galerita (*P.L.S. Müll.*).

ALCYONE, *Swains.*

azurea (*Lath.*). Six. 1 jr. Australia, November.

azurea, *subsp.* **pulchra,** *Gould.* One. Northern Australia (Port Essington, January).

læta, *De Vis. Rep. Ornith. Coll. Brit. New Guinea, Append.* E E, p. 100 (1894).

"Front and sinciput black, rest of head and nape black, with a subterminal band of ultramarine on each feather; back, rump, and upper tail-coverts ultramarine; wing-coverts black, with blue tips; chin and upper throat pale lemon; remainder of under surface deep orange; axillaries and under wing-coverts buff; wing dark brown, with inner lower edge of quills buff, and their upper and outer edges washed with blue; scapulars deep blue; ear-coverts black, broadly tipped with blue; lores and a short band on each side of the neck pale buff; legs orange; bill black. Length, 110 mm.; wing, 54; tail, 25; tarsus, 6; bill, 28. Two examples; one of them, which is immature, has the chin, throat, and foreneck dingy white, only a few feathers of the back tipped with blue, and the bill with a pale tip." (*De Vis*). *Habitat.* Mt. Maneao, British New Guinea.

lessoni, *Cass.* Two. New Guinea.

affinis, *G.R.Gr.*

pusilla (*Temm.*). Three. New Guinea. North Australia (Cape York).

T richardsi, *Tristr.* One. ♂. Solomon Islands (Rendova, August).

Type of the species (Ibis, 1882, p. 134, pl. iv.).

websteri, *Hart. in Cayley Webster's "Through New Guinea," Append.* 1. p. 371 (1898); *id. Ibis,* 1899, p. 278, pl. iii.

"Adult (sex undetermined): above, greenish blue, purer and more ultramarine on the back, rump, and upper tail-coverts, as well as on the hind neck, forehead duller, feathers of lores white, with black tips. The feathers of the upper parts and sides of head and neck have, in fact, only wide blue tips, being black at base and whitish towards the utmost bases. Tail blue. Primaries and their coverts black, primaries whitish grey towards the bases on the inner webs. Under parts white with a very slight buffy tinge. Under tail-coverts deeper buff with blue tips. Sides of breast blue, flanks striped with blue and blackish;

breast crossed by a blue band, which is slightly interrupted in the middle. A large longitudinal whitish buff spot on the sides of the neck, behind the ear-coverts. Bill and feet black. Wing, 62; tail, 43; bill, 53 mm." (*Hartert*). *Habitat.* New Hanover.

DACELONINÆ.

CEYX, *Lacep.*

tridactyla (*Pall.*). Six. ♀. Burmah (Moulmein, March). Malay Peninsula (Malacca).

dillwynni, *Sharpe.* Four. Borneo (Labuan and Silam).

euerythra, *Sharpe* (= *C. rufidorsa*, Strickl. spms. *a*, and *c*, and *C. sharpii*, Salvad. spm. *c*. Tristr. Cat. Coll. Birds, p. 92). Five. Malay Peninsula (Penang). Borneo (Sarawak). Sumatra.

sharpii, *Salvad.* Two. ♂, ♀. Borneo (Labuan, November; Sarawak).

innominata, *Salvad.* (= *C. rufidorsa*, Strickl. spm. *b*. Tristr. Cat. Coll. Birds, p. 92). One. ♂. Java.

melanura, *Kaup.* Three. Philippine Islands (Luzon, Manilla).

samarensis, *Steere.*

Mr. Ogilvie-Grant (Ibis, 1897, p. 243) considers that this species is distinct from *C. melanura*, with which it has been united by Dr. Sharpe (Cat. Birds, Brit. Mus. xviii. p. 181).

mindanensis, *Steere.*

cajeli, *Wall.* One. Bouru.

wallacii, *Sharpe.*

lepida, *Temm.* Three. Moluccas.

sacerdotis, *Rams.*

malamaui, *Steere.* Two. 2 ♀. Sulu Archipelago (Bongao Island, July).

bournsi, *Steere.*

cyanipectus, *Lafr.* Five. 3 ♂, 2 ♀. Philippine Islands (Luzon, Manilla).

No. 2 is the specimen figured by Dr. Sharpe as *C. philippinensis* (Mon. Alced. p. 113, pl. xxxvii., 1869).

It does not yet seem satisfactorily ascertained whether *C. philippinensis* and *C. cyanipectus*, are really distinct species or merely the sexes of the same; we have preferred to follow Messrs. Bourns and Worcester in adopting the latter view.

nigrirostris, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p. 13 (1894).

Alcyone nigrirostris, Grant, Ibis, 1896, p. 556 (*Negros*).

"*Adult male*:—General colour of back and upper tail-coverts bright cobalt blue, slightly lighter than in *C. cyanipectus.* Crown and nape blue-black thickly spotted with bright cobalt, the spots being much wider and slightly lighter than in *C. cyanipectus.* Spots much larger on hind neck, causing it to appear nearly uniform cobalt.

"Scapulars black, heavily washed with dark verditer blue. Wing-coverts washed with verditer blue, each feather with a bright spot or stripe of cobalt blue. Wing black, the outer webs of secondaries heavily washed with light verditer blue. Tail black, the central pair of feathers washed with verditer blue on both webs, the others on outer webs only. Loral spot reddish buff. A spot of same colour on sides of neck. Chin and throat white, washed with buff. Fore neck, breast, and abdomen uniform buff. Flanks, sides of breast, and a complete band across the breast dark verditer blue. A half band of same colour behind this. Under tail-coverts buff, the larger ones tipped with verditer blue. Under wing-coverts like the breast, with a spot of verditer blue at end. Basal portions of inner webs of primaries and secondaries washed with pale buff. *Bill black.* Average measurements from ten males:—Culmen, 1·42 inches; tarsus, ·34; wing, 2·22; tail, ·88. Length of a single male measured in the flesh, 6·50. Female like the male but has only a half band of verditer blue across the breast, this being more imperfect than in *C. cyanipectus.* Average measurements from three females:—Culmen, 1·45 inches; tarsus, ·33; wing, 2·34; tail, ·95. Length of single female measured in the flesh, 5·63 inches." (*Bourns & Worcester*). *Habitat.* Panay, Negros, Cebu.

steerii, *Sharpe.*

argentata, *Tweedd.* One. ♂. Philippine Islands (Mindanao, Zamboango, May).

flumenicola, *Steere.*

T gentiana, *Tristr.* One. ♀. Solomon Islands (San Christoval, Makira, August).

Type of the species, Ibis, 1879, p. 438, pl. xi.

solitaria, *Temm.* Three. North-West New Guinea (Patadinia, November). South-East New Guinea (Astrolabe Mts.).

CEYCOPSIS, *Salvad.*

fallax, *Schleg.* One. Celebes.

sangirensis, *Meyer & Wiglesw. B. Celebes* i, p. 278, pl. x. *figs.* 2, 3 (1898).

"*Adult*—Similar to *C. fallax* of Celebes, but with the blue spots of the head above much larger and continued further down the hind neck, the spots on the sides of occiput almost running into one another, and blue like those of the head, not magenta; the spots on the middle and greater wing-coverts larger, magenta; mantle washed with magenta; bill longer and differing in shape—not so much narrowed in its terminal third, or so much broadened at its base; size a little greater. Wing, 60; tail, 28; bill from nostril, 33; tarsus, 9 mm.

"*Immature* (with a dusky horn-coloured bill). Just like the adult, but with none of the feathers of the mantle tinted with magenta, the blue on the head and neck a trifle darker, and the ear-coverts less strongly washed with magenta. Wing, 62; tail, 25·5; bill from nostril, 31; tarsus, 9 mm." (*Meyer & Wiglesworth*). *Habitat.* Great Sanghir Island (Tabukan).

ISPIDINA, *Kaup.*

picta (*Bodd.*). Four. West Africa (Wassaw, March; Lagos; Gambia, Bathurst).

natalensis (*Smith*). Four. jr. Natal (Durban).

leucogaster (*Fraser*). One. West Africa (Gaboon).

madagascariensis (*Linn.*). Two. Madagascar (South Betsileo, Ankafana, March).

MYIOCEYX, *Sharpe.*

ruficeps, *Hartl.*; lecontii (*Cass.*).

SYMA, *Less.*

torotoro, *Less.* Two. ♂, ♀. South-East New Guinea.

torotoro, *subsp.* tentelare, *Hart. Nov. Zool.* iii. pp. 534, 535 (1896).

"Females from Aru have the black spot on the head in or behind the middle of the crown about 15 mm. or more away from the base of the bill, while in specimens from Northern Dutch New Guinea this spot is generally larger and extends almost, or quite to the base of the culmen. The males of the Aru form do not differ perceptibly from *S. torotoro typica.*" (*Hartert*). *Habitat.* Aru Islands. ? South-East New Guinea.

megarhyncha, *Salvad. Ann. Mus. Civ. Gen.* (2a). xvi. p. 70 (1896).

"Closely resembling *S. torotoro,* but considerably larger, the cervical collar uninterrupted and broader, and with the maxilla differing in being almost entirely black. Total length, 220; wing, 90; tail, 72; culmen, 55; tarsus, 18 mm." (*Salvadori*). *Habitat.* South-East New Guinea (Moroka).

flavirostris (*Gould*). One. ♀. Northern Australia (Jardine River, August).

CARCINEUTES, *Cab. & Heine.*

pulchellus (*Horsf.*). Fifteen. 9 ♂, 5 ♀, jr. Malay Peninsula (Malacca).

melanops (*Bp.*). Three. 2 ♂, ♀. Borneo (Sarawak; Segilind River).

MELIDORA, *Less.*

macrorhina (*Less.*). Five. 2 ♂, 3 ♀ (2 jr.). North-West New Guinea. South-East New Guinea.

jobiensis, *Salvad.*

CLYTOCEYX, *Sharpe.*

rex, *Sharpe.* Two. 2 ♀. South-East New Guinea (Astrolabe Mts.).

DACELO, *Leach.*

gigas (*Bodd.*). Nine. ♂, 2 ♀, skel. Australia (New South Wales; Hunter River).

leachii, *Vig. & Horsf.* Three. ♂, 2 ♀. North Australia.

leachii, *subsp.* **cervina,** *Gould.* Two. ♂, ♀. West Australia. North Australia (Port Essington, February).

leachii, *subsp.* **intermedia,** *Salvad.* Two. ♂, ♀. South-East New Guinea.

SAUROMARPTIS, *Cab. & Heine.*

gaudichaud (*Q. & G.*). Five. 3 ♂, 2 ♀. Aru Islands (Dobbo, October). South-West New Guinea (Lobo Bay, July). South-East New Guinea.

Mr. Hartert states (Nov. Zool. iii. p. 535) that *S. kubaryi*, Meyer, from German New Guinea, differs *in no way* from this species. The specimen from Lobo Bay was collected in July, 1828, by S. Müller, on the voyage of the *Triton.*

tyro, *G.R.Gr.* Two. 2 ♂. Aru Islands, October.

HALCYON, *Swains.*

coromandus (*Lath.*). Twelve. ♂, 2 jr. Malay Peninsula (Singapore, March). Borneo (Labuan, September). Philippine Islands. Formosa. Japan (Chiusenze, April).

coromandus, *subsp.* **rufa,** *Wall.* One. ♂. Great Sangbir Island, February.

badius, *Verr.* Three. West Africa (Fantee; Gaboon).

smyrnensis (*Linn.*). Nineteen. 2 ♂, 2 ♀, 2 jr. Palestine (Bethsaida, April; Gennesareth, March, April; Jericho, January). Nepaul. Northern India (Mhow, October). Southern India (Madras; Nellore). Ceylon. Burmah. Malay Peninsula (Pahang, March).

smyrnensis, *subsp.* **saturatior,** *Hume.* Two. ♂, ♀. South Andaman Islands (Port Blair, May; December).

gularis (*Kuhl.*). Seven. ♀. Philippine Islands (Luzon: San Mateo; Manilla, June; Cataguan, May). [China].

cyaneiventris (*Vieill.*). Seven. 2 ♂. Java (Bantam, May). [New Guinea].

pileatus (*Bodd.*). Thirteen. ♂, ♀, jr. Southern India (Nellore). Malay Peninsula (Pahang, November). Sumatra (Lampong Residency, Rawas River, November). Borneo (Baram).

semicæruleus (*Forsk.*). Six. 2 ♂ (1 jr.). North-Eastern Africa (Faradjok, September; White Nile). Bogosland. West Africa (Gambia, Bathurst, July). [Egypt].

semicæruleus, *subsp.* erythrogaster, *Gould.*

pallidiventris, (*Cab.*) (= *H. orientalis,* Pet. Tristr. Cat. Coll. Birds, p. 93). Three. 1 jr. East Africa (Mozambique). Central Africa (Zomba, Nyassaland, November). South Africa.

It is with considerable hesitation that we refer the three specimens enumerated above to this species. In addition to the differences pointed out by Dr. Sharpe, the wings, rump, and tail are of a purer ultramarine blue without any tinge of green as in *H. semicæruleus*, and in the figure of the typical specimen of *H orientalis* (Mon. Alced. p. 181, pl. lxvi.).

orientalis (*Peters*). One. jr. South-East Africa (Rovuma River).

This specimen agrees perfectly with the figure of the immature bird (Sharpe, *loc. cit*).

albiventris (*Scop.*). Thirteen. 2 ♂. South Africa (Transvaal: Rustenberg, June, July; De Kaap, Bonanza Valley, May; Zululand; Natal).

T **chelicutensis** (*Stanl.*). Fourteen. 2 ♂, ♀. West Africa (Gambia; Senegal). Abyssinia. East Africa (Ribé; Kikombo, May; Zanzibar). Central Africa (Nyassaland, Zomba, August, November). South Africa (Transvaal: Rustenberg, June, July).

No. 1, collected by Salt in 1812 in Abyssinia, is the Type of the species (Stanley, in Salt's Voy. Abyss. App. iv. p. 56, 1814).

senegaloides, *Smith.* Two. ♂. South Africa (Natal).

No. 1 ♂, is the specimen figured by Dr. Sharpe (Monogr. Alced. p. 187, pl. lxviii. 1869).

senegalensis (*Linn.*). Twenty. ♂. West Africa (Gambia, Bathurst, August; Fantee; Gold Coast, January; Cape Coast Castle; Lagos). [Egypt].

senegalensis, *subsp.* **cyanoleucus** (*Vieill.*). Two. 2 ♂. South Africa (North Natal, Monocusi River, Ovampoland, Ondongo, December).

No. 1, from North Natal, is the specimen figured by Dr. Sharpe (Monogr. Alced. p. 189, pl. lxix. 1869).

torquatus, *Swains.* Two. ♂. Liberia (Schnifflesville, February).

torquatus, *subsp.* **forbesi,** *Sharpe.* One. ♂. West Africa. (Ashantee, Rio Boutry, July).

torquatus, *subsp.* malimbicus, *Shaw.*

fortis, *Rchnw. Ornith. Monatsber.* i. p. 202 (1893).

"Very closely allied to *H. dryas*, but with the pileum paler—pale brownish, not dull brown; the breast and belly, as well as the under tail-coverts, pure white; the flanks pale ashy grey. Total length, 310; wing, 120 to 125; tail, 100; bill, 60; tarsus, 18 mm." (*Reichenow*). *Habitat.* Senegal.

dryas, *Hartl.*; albicillus (*Cuv.*).

saurophagus, *Gould.* Five. 3 ♂, ♀ pull. Salwatti, July. Duke of York Islands (Karawala Island, August). Solomon Islands (Bugotu).

admiralitatis, *Sharpe*; godeffroyi, *Finsch.*

anachoreta, *Rchnw. Ornith. Monatsber.* vi. p. 47 (1898).

"General appearance that of *H. chloris* (*Bodd.*), but decidedly larger, the top of the head brighter bluish green, the white spot above the lores larger, ear-coverts blackish, but with a marked tinge of bluish-green, band round the neck not pure black, but with a wash of bluish-green, white nuchal spot very distinct, whole under surface and band round the neck pure white. Total length, 180; wing, 122-125; tail, 95; bill, 60; tarsus, 15 mm." (*Reichenow*). *Habitat.* Anchorite Islands.

albonotatus, *Rams.* One. New Ireland.

leucopygius (*Verr.*). Two. 2 ♂. Solomon Islands (Guadalcanar, Aola, April; Bugotu).

lazuli (*Temm.*). Two. Moluccas.

diops (*Temm.*). Four. 2 ♂, 2 ♀. Batchian, December. Ternate.

macleayi, *Jard. & Selb.* Eleven. 5 ♂ (1 jr.), 4 ♀, jr. North Australia (Port Essington, January, July, October, December; Somerset; Cooktown, August). South-East Australia.

winchelli, *Sharpe.* One. ♂. Philippine Islands (Basilan, Isabella, November).

nigrocyaneus, *Wall.*; stictolæmus (*Salvad.*); quadricolor (*Oust.*); elizabethæ (*Cab.*).

pyrrhopygius, *Gould.* Seven. 2 ♀. Central Australia (Namoi Plains; Burdekin River, May).

cinnamominus, *Swains.*

It has been shown (Hart. Nov. Zool. v. p. 52) that *H. rufigularis*, Sharpe, is merely the female of this species.

reichenbachi (*Hartl.*) (= *H. cinnamomina*, Swains. Tristr. Cat. Birds, p. 92). One. ♀ jr.? Ponape.

This specimen agrees with the description of *H. mediocris, juv.* Sharpe (Cat. Birds, Brit. Mus. xvii. p. 260).

pelewensis, *Wiglesw. Aves. Polynes.* pp. 15, 16 (1894).

Halcyon reichenbachi, auct. (*ex Pelew Islands*).

One. Pelew Islands.

australasiæ (*Vieill.*). Two. Timor. [New Guinea.]

A specimen said to be from New Guinea has the under surface very much paler than the Timor example. We have included Meyer's subspecies *minor*, from Timorlaut, under this name.

sacer (*Gm.*). Five. 3 ♂, ♀. Friendly Islands (Tongatabu, February). Fiji Islands.

juliæ (*Heine*). Twenty. 3 ♂, 3 ♀, juv. New Hebrides (Aneityum; Aniwa, November; Tanna, December; Vate, Havannah Harbour, June, July).

It seems possible that both this species and *H. sacer* are dimorphic, and that perfectly adult birds may occur either with the white or cinnamon superciliaries and occipital bands. The most reliable test of immaturity seems to be the cinnamon edgings on the wing-coverts, and the black tips to the feathers of the sides of the breast, which latter is the last to disappear. Two specimens from Aniwa which, judged by these standards, seem perfectly adult differ from the rest in having the blue of the upper surface much brighter, with less tinge of green, especially on the wings and tail; the whole of the under surface, except the throat, is cinnamon buff, approaching *H. tristrami.* The stripe from the nostril round the head is rich cinnamon; a third specimen, however, shot on the same day, resembles *H. juliæ* from other localities. It is possible that Aniwa is inhabited by a slightly differentiated form of *H. juliæ*, which may also occur on the island in its typical form.

occipitalis (*Blyth*). Two. 2 ♂. Nicobar Islands (Camorta, December; Trialul, May).

pealii, *Finsch & Hartl.*

tutuilæ, *Sharpe.* One. Samoa Islands (Tutuila).

tannensis, *Sharpe.*

T **tristrami,** *Layard.* Two. ♂, ♀. New Britain (Blanche Bay, July).

Types of the species, Ibis, 1880, p. 460, pl. xv.

Dr. Reichenow has described (Ornith. Monatsber. vi., p. 48, 1898), under the name *Halcyon pachyrhynchus*, a kingfisher from New Britain in the following terms:—"Very closely allied to *H. vagans*, and, as in that species, having the feathers of the forehead with rusty yellow edges, but with the bill shorter, more depressed, and broader; streak above the lores, band round the neck, cheeks and under surface, with the exception of the pure white chin, tinged with rusty yellow or ochreous fulvous, darker than in *H. vagans.* Total length, 180; wing, 100-105; tail, 55; bill, 40; tarsus, 15 mm." (*Reichenow*). *Habitat.* New Britain. Except in dimensions this description agrees very well with *H. tristrami*, the Types of which are before us, the differences in the length of the bill might be accounted for by Dr. Reichenow's birds being younger.

sanctus (*Vig. & Horsf.*) (= *H. solomonis*, Ramsay, spm. *a*, Tristr. Cat. Coll. Birds, p. 94). Forty-six. 16 ♂ (4 jr.), 11 ♀ (1 jr.). New Britain (Blanche Bay, June). Duke of York Islands (Mioko Island, August). Solomon Islands (Rendova, August; Bugotu). New Caledonia (Noumea, February, March, May, June, July, September, October; Ansevata, April; Mar Point, August). New Guinea (Fly River). Northern Australia (West Island, Torres Straits, September; Maryborough, May; Port Stephens). New South Wales (Hunter R.; Botany Bay). West Australia (Swan R., November).

T **vagans,** *G.R.Gr.* Fourteen. 2 ♂, ♀, 2 jr. New Zealand (Wellington, March, May). Norfolk Island, October.

No. 5, ♂, from Norfolk Island is the Type of *H. norfolkensis*, Tristr., Ibis, 1885, p. 49.

cassini, *Finsch & Hartl.* (= *H. sacra* (Gm.) spms. *d, f,* Tristr. Cat. Coll. Birds, p. 93. Three. 2 ♂. Fiji Islands (Ovalau, April; Rewa).

chloris (*Bodd.*). Ten. ♂, ♀, jr. Java (Batavia, November; Bantam Arendong, March). Borneo (Santubong). Philippine Islands (Cebu, April; South Luzon). Pelew Islands. Talaut Islands (Lirung, May).

chloris, *subsp.* **armstrongi,** *Sharpe* (= *H. chloris* (Bodd.) spms. *a, b,* Tristr. Cat. Coll. Birds, p. 92). Three. [Bengal]. Java. Borneo (Labuan, February).

chloris, *subsp.* vidali, *Sharpe;* chloris, *subsp.* abyssinicus (*Licht.*).

humii, *Sharpe.* Five. ♂, ♀. Malay Peninsula (Malacca; Singapore, April).

The two specimens from Singapore may perhaps be referable to *H. armstrongi.*

humii, *subsp.* meyeri, *Sharpe;* humii, *subsp.* davisoni, *Sharpe.*

solomonis, *Rams.* Two. ♀ jr. New Ireland, June. Solomon Islands (San Cristoval, Makira, August).

The New Ireland specimen is of a very dark ultramarine blue on the upper surface, brighter on the rump, and with a greenish tinge on the scapulars; the black nuchal collar is very strongly marked. This may possibly prove to be a distinct subspecies.

suvensis, *Sharpe.*

We have attempted to classify the varied forms of *H. chloris* in accordance with Dr. Sharpe's views. The result, as far as the limited material before us enables us to form an opinion, is extremely unsatisfactory; it appears to us that it would be better to unite all these races under *H. chloris,* as Messrs. Meyer & Wiglesworth have done, who state (*B. Celebes* i. p. 295) that were Dr. Sharpe's views "to be adopted not only *H. chloris,* but also *H. armstrongi,* Sh., *H. forsteni,* Bp., *H. solomonis,* Salvad, *H. humii,* Sh., *H. meyeri,* Sh., and perhaps others would apparently have to be admitted into this work—all from the Celebesian region."

sordidus, *Gould.* Two. ♀. North Australia (Cape York; Blackwood Bay, August).

sordidus, *subsp.* colonus, *Hart. Nov. Zool.* iii. p. 244 (1896).

"Closely allied to *H. sordidus typicus,* but much smaller. Culmen, 46 (not 60) mm.; wing, 89-93 (not 112) mm.

". . . Apparently also darker, especially on the head, though this may be due to the freshness of the skins. The loral spot is not white, but pale buff; the concealed spot on the nape very distinct and pale buff; the collar on the hind neck rather broad; above and behind the eye an indication of an eyebrow. Tail, 70 mm." (*Hartert*). *Habitat.* "Egum Group" (Type of subspecies), "Louisiade Islands."

funebris, *Bp.* One. Batchian.

hombroni (*Bp.*). One. ♂. Philippine Islands (Mindanao, Zamboango, April).

concretus, *Temm.* Seven. 5 ♂, 2 ♀. Borneo.

lindsayi (*Vig.*). Five. 2 ♂, 3 ♀. Philippine Islands (Luzon: Manilla; Cataguan).

moseleyi, *Steere.*

TODIRHAMPHUS, *Less.*

veneratus (*Gm.*). Three. ♀. Society Islands (Tahiti, April).

T **youngi,** *Sharpe.* Two. Society Islands (Morea, November).

No. 1 is a Co-type of the species, Cat. Birds, Brit. Mus. xvii. p. 289.

recurvirostris, *Lafr.* Eight. 2 ♀. Navigator Islands (Upolu, Ana, December).

tutus (*Gm.*). Twenty. ♂. Society Islands (Tupnoi; Huaheine, July; Tahiti).

CITTURA, *Kaup.*

cyanotis (*Temm.*). Four. 2 ♂, 2 ♀. Celebes.

sanghirensis, *Sharpe.* Two. ♂. Sanghir Island.

MONACHALCYON, *Reichenb.*

monachus (*G.R.Gr.*). Five. 3 ♂, 2 ♀ (jr.) North Celebes. [Ceram].

monachus, *subsp.* intermedius, *Hart. Nov. Zool.* iv. p. 163 (1897); *Meyer & Wiglesw. B. Celebes* i. p. 298 (1898).

"A *male Monachalcyon* from Tawaya differs conspicuously from *M. monachus monachus* of North Celebes in having the head of a much deeper blue, and with a distinct, though faint, greenish tinge. The tail is a little less washed with blue. It differs from *M. capucinus*, Mey. & Wigl., in having the head deep blue, not black, and the tail not quite without a bluish wash. The breast and abdomen of the Tawaya bird are a shade lighter than in most *males* of *M. monachus monachus*, the beak apparently a little thicker. . . . The Type of *M. m. intermedius* has the 'iris deep umber; feet reddish; claws dark; beak scarlet.' Wing about 142 mm. (moulting); tail, about 127; beak, 50." (*Hartert*). *Habitat.* West Celebes (Tawaya).

capucinus, *Meyer & Wiglesw. Abh. Mus. Dresd.* No. 2, p. 12 (1896); *Hart. Nov. Zool.* iv. pp. 160, 163 (1897); *Meyer & Wiglesw. B. Celebes* i. p. 299, pl. ix. (1898).

"Differs from *M. monachus* of North Celebes by having the head and face black (instead of China blue), the tail olive green (not washed with blue), the remiges dusky olive green (not washed with blue), the remaining upper parts clearer olive green, the whitish of the chin and throat not extending so far down towards the jugulum. Wing, 150; tail, 115; bill from nostril, 41; tarsus, 21 mm.

"*Female*:—Like the male, but the superciliary region, face, and ear-coverts ferruginous, below the eye blackish, and at the base of the bill varied with blackish; back, a shade yellower olive; eye brownish grey, bill orange [red], feet orange-brown. Wing, 146; tail, 120; tarsus, 22; bill from nostril, 42 mm." (*Meyer & Wiglesworth*). *Habitat.* Eastern and Southern Peninsulas of Celebes.

princeps, *Reichenb.* Three. 2 ♂, ♀. Celebes.

fulgidus, (*Gould*). One. Flores.

TANYSIPTERA, *Vig.*

nympha, *G.R.Gr.* One. ♂. New Guinea.

danae, *Sharpe.* Three. jr. South-East New Guinea.

nigriceps, *Sclat.* Three. 2 ♂, jr. Duke of York Island, July, August. New Ireland.

sylvia, *Gould.* Two. ♂, ♀. North Australia (Somerset, Cape York).

salvadoriana, *Rams.* One. ♂. South-East New Guinea.

doris, *Wall.*; emiliæ, *Sharpe*; sabrina, *G.R.Gr.*

hydrocharis, *G.R.Gr.* Three. ♀ jr. Aru Islands (Dobbo, October).

acis, *Wall.*; ellioti, *Sharpe.*

margaritæ, *Heine.* Two. ♂. Batchian, November.

obiensis, *Salvad.*

galatea, *G.R.Gr.* Four. jr. New Guinea (Port Moresby).

galatea, *subsp.* rubiensis, *Meyer.*

microrhyncha, *Sharpe.* One. New Guinea.

T **rosselliana**, *Tristr.* One. Rossel Island.

Type of the species, *Tristr. Ibis*, 1889, p. 557.

meyeri, *Salvad.*

dea (*Linn.*). Four. 2 ♂. Moluccas (Amboina, Paso, May, September).

riedeli, *Verr.* One. Mysori.

carolinæ, *Schleg.* One. New Guinea.

MEROPIDÆ.

DICROCERCUS, *Cab. & Heine.*

azuror (*Less.*). One. West Africa.

An examination of the Type of *Merops furcatus*, Stanley, Salt's Voy. Abyss. App. iv. p. 57 (1814), from Adowa, Abyssinia, shows that it must be referred to the southern form *D. hirundineus* (Licht.), as it presents no trace of the blue superciliaries and forehead. *Merops chrysolaimus*, Jard. & Selb. Ill. Orn. ii. pl. xcix., which slightly antedates *Merops azuror* (Less.), must be rejected on account of ambiguity. Though the description is sufficiently correct, the authors evidently intended it to apply to the southern form also, as they mention having received it from the Cape of Good Hope; the figure, moreover, is not that of the West African species.

T **hirundineus** (*Licht.*). Six. ♀, jr. Abyssinia (Adowa). Central Africa (Nyassaland, Zomba, July; Zambesi). South Africa (Damaraland, October).

No. 6 is the Type of *Merops furcatus, Stanley, loc. cit.*

MELITTOPHAGUS, *Boie.*

meridionalis, *Sharpe.* Eleven. ♂, 2 ♀. Abyssinia. Central Africa (Nyassaland, Zomba, July). South Africa (Transvaal: Rustenberg, June; Natal).

The presence of this species in Abyssinia, where two specimens were collected by Salt in 1812, is puzzling; they agree perfectly with others from the Transvaal, Natal, and Nyassaland. It is very probable, however, that the true locality is Mozambique, where Salt also collected.

pusillus (*P. L. S. Müll.*). Six. 2 ♀ (1 jr.). West Africa (Senegal; Niger). East Africa (Ghaba Shambé, July; Kikombo).

A specimen, presumably immature, collected at Ghaba Shambé in July, 1882, by Emin Pasha, and marked ♀, differs from all the others by the entire absence of blue, black, and chestnut from the upper breast, which is dull greenish buff; the bill, too, is shorter, and very much less curved.

cyanostictus, *Cab.* One. East Africa (Ribé).

variegatus (*Vieill.*). One. West Africa (Lagos).

T **lafresnayii** (*Guerin*). Two. Abyssinia.

These specimens, collected by Salt in 1812, are the Types of *Swallow-tailed Bee-eater*, var. A. Lath., Gen. Hist. iv. p. 142 (1822).

gularis, *Shaw & Nodder.* Ten. ♂, ♀. West Africa (Gold Coast: Denkera, January; "Rio de Boutig," October, December; Lagos).

T **gularis**, *subsp.* **gabonensis**, *subsp. nov.* One. West Africa (Gaboon).

Closely allied to *M. gularis typicus*, but having the frontal band much narrower, *of a dull olive green, not cobalt blue;* the superciliary stripe very ill-defined, of the same colour as the forehead. Edges of the primaries, secondaries, and two central tail feathers *dull greenish, not bluish*, somewhat narrower than in the typical form. Feathers of the upper breast with brick red shaft stripes broadening out towards the tips. Wing, 98; tail, 71; culmen (from anterior margin of nasal aperture), 29; tarsus, 9 mm. *Habitat.* Gaboon (*Coll. Walker*).

Apparently intermediate between *M. gularis* and *M. gularis australis*.

gularis, *subsp.* australis (*Rchnw.*).

T **bullocki** (*Vieill.*). Two. Senegal.

No. 1. is the Type of *Scarlet-throated Bee-eater*, Lath. Gen. Hist. iv. p. 137 (1822).

frenatus (*Hartl.*) (= *Merops bullocki*, Vieill. Tristr. Cat. Coll. Birds, p. 96). One. ♂. North-Eastern Africa (Bora, November).

boleslavskii (*Pelz.*); oreobates, *Sharpe.*

bullockoides (*Smith*). Nine. 3 ♂, 2 ♀. Central Africa (Nyassaland, Tsheromo, September). South Africa (Transvaal: Limpopo River, July; Natal, Menocursi River; Kurrichane).

rivoilii, *Oust.*

leschenaulti (*Vieill.*). Five. Java (Bantam Residency, Kosala, June).

swinhoii (*Hume*). Seven. "Himalayas." Ceylon.

MEROPS, *Linn.*

muelleri (*Cass.*).

bicolor, *Bodd.* Three. ♀. Philippine Islands (Cebu, April; Luzon, Cataguan).

sumatranus, *Raffles.* Thirteen. 4 ♂ (1 jr.), 2 ♀ (1 jr.), 4 juv. Malay Peninsula (Malacca, Singapore, December). Sumatra (Lampongs: Tarratas; Palembang: Rawas River, December). Borneo (Paising, April).

apiaster, *Linn.* Twenty. 10 ♂, 3 ♀. Morocco (Tangier, March). Algeria (Algiers, September; Boghaar, May). Palestine (Banias, May; Safed, Tel-el-Kady, April). Syria (Acre, May; Tartoos, May; Karchemish, June). North-Eastern Africa (White Nile). Central Africa (Nyassaland, Zomba, December). South Africa (Transvaal: Rustenberg, January).

persicus, *Pall.* Eighteen. 4 ♂, 2 ♀. Algeria (M'zab, Gardiah, April). Egypt. Syria (Karchemish, June). North-Eastern Africa (White Nile). West Africa (Gambia, Bathurst, October, November; Ambriz River, September). South Africa (Transvaal: Potchefstroom, April). Persia (Fao). Afghanistan.

superciliosus, *Linn.* Nine. ♂, 3 ♀. Central Africa (Nyassaland, Milanji Plains, August). Great Comoro Island. Johanna Island. Madagascar (St. Augustine's Bay).

philippinus, *Linn.* Thirty. 3 ♂, 2 ♀. Southern India (Madras; Nellore). Ceylon. Malay Peninsula (Malacca; Singapore, December). Java (Buitenzorg, December). Borneo (Trusan, March). East Timor. Philippine Islands (Luzon, San Mateo, February). China.

ornatus, *Lath.* Twenty-five. 5 ♂ (3 jr.), ♀, 3 jr. Northern Australia (Port Essington; Darnley Island, April; Woody Wallis Island, September). New South Wales. Tasmania. West Australia (Swan River). New Guinea (Port Moresby, October). New Britain (Blanche Bay, June).

T **albicollis,** *Vieill.* Ten. ♂, ♀. West Africa (Gold Coast; Fantee; Sierra Leone). North-Eastern Africa (White Nile). East Africa (Ribé).

Nos. 6 and 7 from Sierra Leone are the Types of *M. savignii*, Swains. Zool. Illustr. ii. pl. lxxvi. (1821).

viridis, *Linn.* Sixteen. 4 ♂. Egypt (Minich, March). West Africa (Senegal). Northern India (Muddapur, August; Scinde). Southern India (Ootacamund, January, February; Nellore).

muscatensis, *Sharpe*; cyanophrys, *Cab. & Heine*; boehmi, *Rchnw.*

nubicoides, *Des Murs & Pucher.* Seven. ♀, 2 jr. Central Africa (Nyassaland, September). South Africa (Makalaka Country; Transvaal: Crocodile River, January; Rustenberg, January).

nubicus, *Gm.* Seven. 2 ♂. West Africa (Gambia; Lagos). North-Eastern Africa (Nubia; Ghaba Shambé, July; White Nile). East Africa (Lamo).

malimbicus, *Shaw.* Four. West Africa (Fantee; Lagos).

breweri (Cass.).

MEROPOGON, *Bp.*

forsteni, *Bp.* One. ♀ jr. North Celebes (Minahassa, September).

NYCTIORNIS, *Swains.*

athertoni, *Jard. & Selb.* Seven. ♂. Northern India (Darjeeling). Sikkim.

amicta (*Temm.*). Fourteen. 7 ♂ (2 jr.), 4 ♀ (1 jr.). Malay Peninsula (Malacca). Sumatra (Lampongs: Penang-gungan). Borneo (Silam, Baram, May).

The Coraciæ are, therefore, represented in the Museum by 37 out of the 39 characterised genera; and by 1249 specimens belonging to 211 out of the 291 described species or subspecies. The number of species represented by their Types is 10, besides 6 relegated to the synonymy. (May, 1899.)

TROGONIDÆ.

PHAROMACRUS, *De la Llave.*

moccino, *De la Llave.* Ten. 7 ♂ (2 jr.), 3 ♀ (2 jr.). Guatemala (Volcan de Fuégo, November; Rasche, March; Coban, June).

antisiensis (*D'Orb.*). Seven. 5 ♂ (1 jr.), 2 ♀. U.S. Colombia (Bogota). Bolivia.

auriceps (*Gould*). Six. 4 ♂, 2 ♀. U.S. Colombia (Bogota). Venezuela.

xanthogaster, *Turati & Salvad.*

This species, included as a synonym of *P. auriceps* by Mr. Ogilvie-Grant, appears to be distinct. *Cf.* Oustalet Nouv. Arch. Mus. Paris (3) vii. pp. 229-231, pl. viii. (1895).

pavoninus (*Spix.*). Four. 3 ♂, ♀. Brazil (Amazons; Rio Negro).

EUPTILOTIS, *Gould.*

neoxenus (*Gould*). Two. ♂, ♀. Mexico (Bolanos).

TMETOTROGON, *Cab. & Heine.*

rhodogaster (*Temm.*). Two. ♂, ♀. San Domingo.

PRIONOTELUS, *Reichenb.*

temnurus (*Temm.*). Two. Cuba (Havana).

TROGON, *Linn.*

mexicanus, *Swains.* Five. 2 ♂ (jr.). ♀. Mexico (Bolanos). Guatemala (Volcan de Fuégo).

personatus, *Gould.* Nine. 5 ♂ (4 jr.), 4 ♀. Bolivia. Ecuador (Sarayaçu). U.S. Colombia.

personatus, *var. an sp. nov.*

A single male specimen in the collection, unfortunately without locality, in all probability represents a new species. It belongs to section *a″* of Mr. Ogilvie-Grant's key, and comes nearest to *T. personatus*; it differs in having the whole upper surface coppery green, with no tinge of bluish as in *T. personatus*; tail, scapulars, and breast coppery bronze, showing but little tinge of green; lower breast, abdomen, and under tail-coverts rich orange, becoming more pinkish on the sides, differing from *T. personatus* as *T. aurantiiventris* does from *T. puella*. Dimensions the same as of *T. personatus* (wing, 5·2 inches).

collaris (*Vieill.*). Four. 3 ♂, ♀. Bolivia.

The female specimen is the only one with the locality attached; it was collected in Bolivia by Bridges. It is with difficulty distinguished from female specimens of *T. personatus*, but seems to have the throat somewhat greyish black, and no tinge of chocolate on the top of the head. In *T. personatus* the bill is entirely yellowish in skin, but in our specimen of *T. collaris* above referred to the upper mandible is blackish, with only the tomia yellow.

elegans, *Gould.* One. ♂. Guatemala.

ambiguus, *Gould.* Two. 2 ♂. South Mexico (Terro Tepic, Sierra de Nayaret, March

puella, *Gould.* Four. 3 ♂, ♀. Guatemala (Coban, November).

aurantiiventris, *Gould.* One. ♂. Costa Rica (Miravalles, October).

atricollis, *Vieill.* Ten. 6 ♂, 4 ♀. Central America. Trinidad. Demerara. Brazil (Rio Janeiro).

chrysomelas, *Richm. Proc. U.S. Nat. Mus.* xvi. p. 513 (1893).

"Exactly like *T. atricollis tenellus*, except that the metallic green of the male is wholly replaced by opaque black, without the slightest trace of metallic gloss.

"The supposed female . . . . resembles that of *T. caligatus* almost exactly, but the barring on the wing-coverts and secondaries is very different, and there is a slight difference on the upper parts, a perceptible gloss being present on these parts in the bird just described." (*Richmond*). *Habitat.* Nicaragua (Escondido River).

The description of this species reads like that of an abnormal colour variety; we are not acquainted with anything resembling it.

viridis, *Linn.* Sixteen. 9 ♂, 7 ♀. Brazil (Rio Huallago). Ecuador.

chionurus, *Sclat. & Salv.*

bairdi, *Lawr.* One. ♂. Chiriqui.

citreolus, *Gould.*

melanocephalus, *Gould.* Ten. 6 ♂, 4 ♀ (1 jr.). South Mexico. "River St. John, Central America." British Honduras. Guatemala (Coban).

caligatus, *Gould.* Six. 2 ♂, 4 ♀. Guatemala (Dueñas; Coban).

meridionalis, *Swains.* Six. 2 ♂, 3 ♀. skel. Ecuador.

ramonianus, *Deville & Des Murs.*

variegatus, *Spix.* Three. 2 ♂, ♀. Brazil. Bolivia.

bolivianus, *Grant.*

surucura, *Vieill.* One. ♂.

aurantius, *Spix.* One. ♂. Brazil

melanurus, *Swains.* Nine. 6 ♂. 3 ♀. Brazil (River Maranon).

macrurus, *Gould.* One. ♂. Bolivia.

massena, *Gould.* Seven. 5 ♂ (1 jr.). 2 ♀. British Honduras. Guatemala (Yzabal; Choctum).

clathratus, *Salv.*

HAPALODERMA, *Swains.*

narinum (*Steph.*). Eight. 5 ♂, 3 ♀. East Africa (Mombasa). Central Africa (Zambesi). South Africa (Transvaal: De Kaap, Barberton, August; Cape Colony).

constantiæ, *Sharpe & Ussher.*

rufiventre, *Dubois, P.Z.S.* 1896, p. 999.

"Similar to *H. narinum* but more beautiful, with the breast, abdomen, and under tail-coverts isabelline rufus.

"♂—Of a golden green colour, with coppery reflections; cheeks bare (in the prepared skin these parts are blackish; they are probably of a blue colour in the living bird) with a narrow band of green feathers running across them from front to rear; greater wing-coverts and secondaries blackish, mottled with white and edged with coppery green; primaries black, white at the base; first and second tail feathers white, blackish green at the base, the third blackish green tipped with white, the central ones dull olive green edged with shining green; breast, abdomen, and under tail-coverts isabelline red, palest on the latter; tarsus feathered to the toes—these feathers, as well as those of the thighs, dull green mottled with ashy. Beak yellow; toes reddish. Total length, 280; wing, 132; tail, 170; tarsus, 14 mm." (*Dubois*). *Habitat.* Lake Tanganyika.

HETEROTROGON, *Richm.*

"Size medium; form slender; tail long; rectrices not truncate. Three centre pairs of rectrices dark purplish-blue, with metallic reflections, in both sexes; no black terminal bar on middle pair; three out pairs with black and white bars on their exposed portions. Bill small, slender, and much compressed. Tomia of both maxilla and mandible smooth, without signs of serrations posterior to subterminal notch. Sexes unlike in coloration." *Richmond, Proc. U.S. Nat. Mus.* xvii. p. 602.

vittatum (*Shelley*).

The hitherto unknown female is described from Kilimanjaro by Richmond (*ut supra*).

PYROTROGON, *Bp.*

We have followed Mr. Richmond (*loc. cit.*) in substituting this name for *Harpactes*, Swains.; strictly speaking *Hapalurus*, Reichenb., is the next available, but this author does not appear to have indicated a definite type for his genus.

diardi (*Temm.*). Two. 2 ♂. Borneo (Baram).

T **neglectus,** *n. sp.* Eighteen. 9 ♂, 9 ♀. Malay Peninsula (Malacca; Pahang, January).

There appear to be two forms of the Trogon hitherto known as *Harpactes diardi* (Temm.), similar in all respects except that while the male of one has the top of the head black the other has it dull crimson; the latter, which appears to be confined to Borneo, is the one figured by Temminck, and to it, therefore, the name *P. diardi* applies. The Malaccan form appears unnamed, and we have accordingly with some hesitation considered it as a distinct species.

Through the kindness of the Hon. Walter Rothschild we have examined female specimens from Borneo, and are unable to detect any differences between them and Malaccan birds. Two male specimens in the collection from an unspecified locality are somewhat intermediate, having the crown red to the posterior margin of the eye. The Sumatran birds belong to the Malaccan form.

It is interesting to note that specimens of both sexes in worn plumage appear readily to lose the black tips of the russet tail feathers, as they are absent in many of our specimens.

kasumba (*Raffl.*). Ten. 7 ♂ (3 jr.) 3 ♀ (1 jr.). Malay Peninsula (Pahang, January, April; Malacca). Borneo (Silam).

fasciatus (*Penn.*). Four. 2 ♂, 2 ♀. Southern India (Coonoor Ghaut; Nellore). Ceylon (Kandy).

ardens (*Temm.*). Three. 2 ♂, ♀. Philippine Islands (Mindanao, Davao, April).

whiteheadi (*Sharpe*).

erythrocephalus (*Gould*). Eight. 4 ♂ (2 jr.). 4 ♀ (1 jr.), Sikkim, Nepaul.

T **erythrocephalus,** *subsp.* **flagrans** (*S. Müll.*). Two. ♂, ♀. Sumatra (Batang Singalang).

Typical specimens collected by S. Müller.

duvauceli (*Temm.*). Twenty-three. 16 ♂, 7 ♀. [India (Himalayas).] Malay Peninsula (Pahang, January; Malacca). Sumatra. Borneo (Banjermassim; Baram).

orrhophæus (*Cab. & Heine*). One. ♂.

vidua (*Grant*). One. ♂. Borneo (Mt. Dulit (3,000 feet), February).

oreskios (*Temm.*). Four. 2 ♂, 2 ♀. Tenasserim (Bussad, December) Java.

dulitensis (*Grant*).

HAPALARPACTES, *Cab. & Heine.*

reinwardti (*Temm.*). Three. 2 ♂, ♀. Java.

mackloti (*S. Müll.*). Two. 2 ♀. Sumatra.

The Trogones are, therefore, represented in the Museum by 8 out of the 9 characterised genera; and by 220 specimens belonging to 41 out of the 53 species or subspecies. The number of species represented by their Types is 2. (May, 1899.)

PRESENTED
19 AUG. 1899

The Bulletin

of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums **(H. O. Forbes, LL.D.),**

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals; but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. HENRY YOUNG & SONS, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net per number (per post 2s. 8d. net), or to subscribers at 8s. net per volume (per post 8s. 8d. net.), payable in advance.

Volume I. is now ready, illustrated with 33 engravings, 5 of which are **coloured by Hand,** cloth, extra, top edges gilt, 12s. 6d. net, per post 12s. 10d. net.

SEPTEMBER, 1899. Vol. II. No. 2.

BRITISH MUSEUM NATURAL HISTORY.

Bulletin
of the
Liverpool Museums
Under the City Council.

CONTENTS.

The Expedition to Sokotra:

	PAGE
Descriptions of the New Moths. By Sir George F. Hampson, Bart.	35
Descriptions of the New Spiders. By R. I. Pocock	40
Descriptions of the New *Orthoptera*. By Malcolm Burr	42
Descriptions of the New *Hemiptera*. By G. W. Kirkaldy	45
Note on Three Rare and not hitherto figured species of *Zosterops* in the Derby Collection. By H. C. Robinson	47
Birds in the Derby Museum collected in the Antarctic Regions	48
Catalogue of the Charadriiformes: Auks, Gulls, Skuas; Lark-plovers, Stone-curlews, Jaçanas, Sheathbills, Crab-plovers, Coursers, Plovers and Snipes; Pigeons, and Sand-grouse in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson	51

Edited by **H. O. Forbes, LL.D.**, *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, South Castle Street,
and 23, Parker Street.
ISSUED 30th SEPTEMBER.

NOTE.—The plate illustrating the article on *Three Rare Species of Zosterops*, p. 47, was issued with the previous number of the *Bulletin*.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

Vol. II. SEPTEMBER, 1899. No. 2.

The Expedition to Sokotra.

Since the issue of the first number of this volume, several of the specialists engaged on the collections made in the islands of Sokotra and Abd-el-Kuri by the combined expedition of the British and Liverpool Museums, have completed the examination of the groups kindly undertaken by them. Short diagnoses of the new species are herewith given.

VI. Descriptions of One New Genus and Fourteen New *Species* of Moths.

By Sir George F. Hampson, Bart.

Noctuidæ.

Caradrininæ.

(1) Agrotis brachypecten.

♂. Antennæ bipectinate, the branches very short with fasciculate cilia. Reddish brown, mixed with grey; palpi fuscous at sides; tegulæ with blackish lines; patagia with blackish streak; abdomen paler, dorsally tinged with fuscous towards base. Fore-wing with sub-basal and antemedial greyish lines defined by fuscous, the former short, waved, the latter waved, produced to a rather long angle above inner margin and with the short, blackish, claviform stigma on its outer edge; the orbicular greyish defined by fuscous, and either circular or rather elongate and pointed at the ends; the reniform large, with fuscous centre and outline, or entirely suffused with fuscous and with fuscous suffusion above it on costa; the postmedial line excurved from below costa to vein 2 and produced to short black streaks on the veins; some fuscous suffusion on terminal area; a greyish subterminal line expanding into a spot at apex, then dentate inwards to vein 5 and outwards on veins 5 and 4; a fine lunulate terminal line; hind-wing white; the veins and termen often tinged with fuscous.

♀. Fore-wing sometimes suffused with fuscous.

Exp. ♂, 32-38; ♀, 40 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 1 ♂, 18 ♀; Jena-agahan, 1140 ft., 1 ♀; Hadibu Plain, 5 ♂).

Extremely like *A. corticea*, Schiff., but with very much shorter branches to the antennæ.

Acontianæ.

(2) Tarache melæna.

♀. Head and abdomen fuscous; thorax black; fore-wing glossy black-brown; a white antemedial band, with nearly straight almost erect edges bounded by black lines, the band sometimes narrower, or not extending below vein 1, or in one specimen reduced to a grey spot on costa; a triangular postmedial white spot on costa, with the minutely dentate postmedial black line arising from it strongly incurved below vein 3; a terminal series of white points usually present and sometimes some slight subterminal marks towards tornus. Hind-wing dark fuscous. *Exp.* 20 mm.

Habitat. Sokotra (Hadibu Plain, 9 ♀).

(3) Metachrostis terminipuncta.

♂. Head and thorax red brown; abdomen fuscous; fore-wing with the basal half pale red-brown; two sub-basal black points on costa with short obscure lines from them; two antemedial waved red-brown lines arising from black points on costa; a waved medial line with the area beyond it deep red-brown with some pale patches; an oblique discoidal lunule with some black on its inner edge; a blackish mark in submedian fold before the double minutely dentate postmedial line, which is bent outwards between veins 6 and 3; a sinuous subterminal line, with a prominent black spot beyond it on termen above vein 5; some slight terminal black lunules. Hind-wing dark fuscous, the underside brown irrorated with fuscous, with dark discoidal point and curved postmedial line. *Exp.* 28 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 1 ♂).

Noctuinæ.

(4) Cerocala sokotrensis.

Head and thorax clothed with grey, fuscous, and brown scales; palpi white except at tips; the vertex of head and front of tegulæ brownish white; abdomen brownish white, irrorated with fuscous; pectus and ventral surface white. Fore-wing with the base, costal area, and termen grey, irrorated with fuscous and brown, the rest of wing fuscous and brown with leaden suffusion in parts; a fine black line from subcostal nervure before middle curved to above middle of inner margin, defined on outer side by grey and followed by a broad rufous band; the orbicular small, black-edged with brownish centre, and elliptical; the reniform grey, black-edged, somewhat quadrate; the postmedial black line oblique from below costa to vein 2, recurved to the inner edge of reniform, then excurved and bounding the rufous band, a large bar-shaped brown-irrorated white patch on its inner side beyond the cell; a sub-terminal brown line defined by whitish on inner side, strongly angled inwards in discal fold and slightly in submedian fold, with two black marks on its inner side below the upper angle, and slight marks above and below the lower angle; the termen suffused with brown; a crenulate terminal black line; cilia intersected with whitish. Hind-wing with the base and inner area brownish white; a slight blackish streak on inner area; an oblique blackish bar from upper angle of cell to the broad fuscous subterminal band at vein 2, and with a whitish patch beyond it, beyond the cell; two deep black subapical spots on termen, a large patch at middle extending on to cilia, with a small spot below it with white spot on its inner side; cilia white; underside yellowish white; fore-wing with oblique black bar from upper angle of cell to the sinuous postmedial line, the area beyond which is brownish, with a large apical black patch; a white patch beyond the cell; hind-wing with small black spot on discocellulars, and another beyond lower angle of cell.

Habitat. Sokotra (Jena-agahan, 2500 ft., 1 ♀; Hadibu Plain, 12 ♂, 21 ♀).

Closely allied to *C. vermiculata*, H.S., from S. Africa, but differs in the oblique discoidal band of hind-wing and black terminal spots.

Amefrontia, *gen. nov.*

Type. **A. purpurea.**

Palpi oblique, reaching just beyond the large frontal tuft, which has a flattened corneous plate below it with rounded edge; antennæ bipectinate, with moderate branches; tibiæ without spines. Fore-wing with areole; the costa slightly arched; the termen obliquely curved; the cilia non-crenulate. Hind-wing with vein 5 from well above angle of cell.

(5) **Amefrontia purpurea.**

♂. Head and thorax vinous red; antennæ black-brown with white tips; legs brown, the joints ringed with white; abdomen ochreous brown. Fore-wing vinous red; the disk tinged with brown; the orbicular and reniform ochreous white, with some purplish scales at centre; an indistinct dark waved antemedial line; a crenulate slightly curved postmedial line with short streaks beyond it on the veins; a terminal series of ochreous points. Hind-wing white tinged with fuscous. *Exp.* 22 mm.

Habitat. Sokotra (Hadibu Plain, 1 ♂).

(6) **Amefrontia albiluna.**

♀. Head and thorax ochreous brown mixed with darker scales; fore-tarsi banded with black; abdomen ochreous white slightly tinged with fuscous. Fore-wing ochreous brown, irrorated with dark brown; traces of a sinuous antemedial line with a dark shade on its inner side and some black scales on its outer; a medial dark shade angled at lower angle of cell; a black discoidal lunule with a white lunule on its outer edge; the postmedial line double, excurved from costa to vein 3, then incurved, some black points on its inner side, and fuscous grey suffusion beyond it. Hind-wing whitish, the terminal half suffused with fuscous; cilia whitish. *Exp.* 20 mm.

Habitat. Sokotra (Hadibu Plain, 2 ♀).

Geometridæ.

Boarmianæ.

(7) **Hyperythra ædiphlebia.**

♂. Fore-wing without fovea; hind-wing with the base of costal veins swollen. Orange-yellow; antennæ with the branches brownish; palpi at sides and legs thickly irrorated with red-brown; abdomen slightly irrorated with brown; wings with fine red-brown striæ. Fore-wing with indistinct antemedial brown line bent inwards to costa; a similar but more prominent medial line with darker discoidal striga on it; an oblique subterminal bar from costa with traces of a line arising from it and dark point beyond it above vein 3. Hind-wing with almost medial slightly oblique brown line and curved diffused subterminal line. *Exp.* 28 mm.

Habitat. Sokotra (Hadibu Plain, 3 ♂).

Larentianæ.

(8) Scotosia rubritincta.

Grey and red-brown, thickly irrorated and strongly diffused with black; pectus, underside of legs, and ventral surface of abdomen whitish; wings with numerous indistinct waved dark lines. Fore-wing with more distinct sub-basal line angled below costa; an antemedial line excurved below costa and angled in submedian interspace; the medial area somewhat darker, with dark streaks on the veins and discoidal bar; the postmedial line defined by grey, dentate and strongly angled outwards between veins 4 and 2; the terminal area darker with dentate grey subterminal line. Hind-wing with discoidal point; a minutely dentate postmedial line defined by grey and angled outwards beyond lower angle of cell; the terminal area darker, with dentate greyish subterminal line; both wings with terminal series of pale points and fine black striæ. Underside yellowish white striated with fuscous; black discoidal spots and postmedial line angled beyond the cell; the terminal area black with whitish spots on fore-wing and waved line on hind-wing. *Exp.* 32-40 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 1 ♂, 1 ♀; Homhil, 1500 ft., 1 ♀; Jena-agahan, 1200 ft., 3 ♂, 1 ♀; Hadibu Plain, 1 ♂); off west end of Sokotra, 1 ♂; British East Africa (*Gregory*), 1 ♀.

(9) Cidaria holophæa.

♂. Dark fuscous brown. Fore-wing with three or four minutely waved lines on basal area slightly angled below costa; two antemedial lines with reddish brown between them, the inner line waved, the outer slightly angled inwards in submedian fold; a discoidal point; two postmedial lines with red brown between them, the inner minutely waved and angled below costa, the outer slightly defined by grey and strongly angled outwards beyond lower angle of cell, then incurved, and with indistinct waved lines beyond it; a waved grey subterminal line with black marks in its curves; a fine black terminal line. Hind-wing with two medial lines slightly angled at middle, with indistinct waved lines between and beyond them; an indistinct waved grey subterminal line and punctiform black terminal line.

♀. Fore-wing with the medial area much darker and usually strongly defined by grey before and beyond it; the subterminal line with the black marks prominent. *Exp.* 30 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 14 ♂, 5 ♀).

Acidalianæ.

(10) Craspedia fulvicolor.

Ochreous, thickly irrorated with dark red; frons and palpi chestnut; vertex of head whitish. Fore-wing with antemedial series of three dark points on the veins, angled on median nervure; a dark discoidal spot with an indistinct oblique slightly sinuous line just beyond it; a postmedial series of dark points angled outwards at veins 6 and 4, and with traces of a waved line beyond it; a terminal series of points. Hind-wing with discoidal bar-shaped spot; an indistinct, curved, diffused medial line; a postmedial series of points slightly bent outwards below costa, and excurved at median nervules; traces of a waved subterminal line; a terminal series of points. Hind-tibiæ of male not dilated and without spurs. *Exp.* 24-30 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 2 ♀; Jena-agahan, 1200 ft., 2 ♀; Kamahanu, 500 ft., 1 ♀; Hadibu Plain, 1 ♂, 1 ♀).

Pyralidæ.

Phycitinæ.

(11) Hypogryphia pulverealis.

Grey-white, thickly irrorated with fuscous. Fore-wing with indistinct antemedial dark line strongly angled in submedian fold; a medial line strongly angled outwards in cell and submedian fold and inwards on median nervure and vein 1; a dark point at lower angle of cell; the postmedial line angled inwards at vein 6 and in submedian fold, bent outwards and minutely dentate between veins 5 and 2; a prominent terminal series of points. Abdomen and hind-wing uniform pale grey, the latter with traces of a curved subterminal line; a fine terminal line, and line through the cilia. *Exp.* ♂ 22; ♀ 26 mm.

Habitat. Sokotra (Jena-agahan, 1 ♂, 2 ♀).

(12) Heterographis (Staudingeria) innotalis.

♂. Head and thorax pale red-brown; palpi below, edges of tegulæ and upper edge of patagia white; a slight dorsal tuft on first segment of abdomen; pectus, greater part of legs, and ventral surface of abdomen white. Fore-wing pale red-brown; a white patch at base of inner margin; the marginal areas broadly and strongly irrorated with fuscous. Hind-wing semihyaline white, the terminal area tinged with fuscous.

The antennæ with very long cilia as in *H. yerburi* from Aden. *Exp.* 24 mm.

Habitat. Abd-el-Kuri, 1 ♂.

(13) Heterographis flammealis.

Head ochreous whitish; thorax and abdomen pale red-brown; the tegulæ whitish in front. Fore-wing vinous red, irrorated with white and fuscous; the basal inner area without irroration; a medial orange-yellow band with waved edges produced along costa to well beyond middle, and with a red band, not irrorated, beyond it; a black discoidal point; a patch of red-brown on terminal area. Hind-wing pale semihyaline, tinged with brown especially towards termen; a fine terminal line and line through the cilia. *Exp.* 14 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 1 ♀; Hadibu Plain, 1 ♂, 1 ♀).

Hydrocampinæ.

(14) Stenia grisealis.

Grey-brown; palpi white at base; frons edged with white; antennæ with the shaft white above; legs and ventral surface of abdomen striped with white. Fore-wing with the costal edge white; a yellowish spot below vein 2, near its base, sometimes almost obsolete, sometimes with traces of spots in cell and above veins 2, 5, and 6. Hind-wing paler; the cilia white. *Exp.* 18 mm.

Habitat. Sokotra (Adho Dimellus, 3500—1500 ft., 2 ♂, 2 ♀; Homhil, 2500 ft., 1 ♂; Jena-agahan, 1200 ft., 1 ♂; Hadibu Plain, 13 ♀).

VII. Descriptions of One New Genus and Four New Species of Spiders.

By R. I. Pocock.

Argiopidæ.

(1) Araneus hoplophallus.

♂. **Colour.**—Carapace and legs yellowish red, the latter marked with deep brown transverse bands and armed with spines, mostly white with black tips, except those on the front of the tibia of the 2nd leg, which are nearly black throughout; upper side of abdomen mottled with olive black spots and marks on a greyish ground; the anterior area between and in front of the shoulder points marked medially with an olive black stripe which behind is continuous with a transverse, slightly procurved, band of the same colour extending between the shoulder points; no pair of circular white marks on this area; the rest of the dorsal surface marked with narrow transverse olive black lines, with their extremities curved forward and bordered behind by a paler line. Structurally the type of this species is very closely allied to the males of *A. streptoceros*, Poc., from Rhodesia and Nyassaland (Ann. Mag. Nat. Hist. (7), II., p. 436, 1898), and to *A. cyrtoscapus*, Poc., from Natal (Ann. Mag. Nat. Hist. (7), II., p. 206, 1898), but differs from them in the structure of its palpal organs, as will be shown in our illustration accompanying the final report upon the Sokotra collection.

Total-length, 11 mm.; length of carapace, 6.

Habitat. Adho Dimellus (3500-4500 ft.). A single male example.

(2) Araneus cardioceros.

♀. **Colour.**—Carapace yellow, with a black clypeal band, and an obliquely longitudinal arched stripe on each side of the head; mandibles yellow, clouded with black in front; palpi and legs yellow, clothed with white hairs, armed with black spines, and banded with black; sternum bordered with black; abdomen greyish white above, marked with distinct olive green "folium"; ventral surface with two whitish bands, separated by a narrower dark interspace, extending from the epigastric fold to the spinners, which are blackish.

Carapace about as long as tibia of 1st leg; moderately high, its upper surface from the ocular area back to the apex of the fovea nearly flat longitudinally; median quadrangle of the eyes considerably wider in front than behind, the anterior median perhaps a little larger than posterior median, the latter about a diameter and a half apart; anterior median about two diameters apart, about a diameter above the clypeus, more than twice as far from the laterals as from each other; eyes of the anterior line distinctly though not very strongly procurved; the two laterals not quite in contact. *Legs* spined; abdomen heart-shaped, a little longer than wide, convexly rounded in front, with prominent but obtuse shoulder points from which the two sides of the anterior margin are inclined forward and inwards at a right angle; posterior extremity not produced. *Vulva* consisting of a vertically directed heart-shaped tubercle, without any distinct scape.

Total length, 7 mm.; carapace, less than 3; width of abdomen, 4; length, 4·5.

Habitat. Sokotra (Adho Dimellus and Jena-agahan) and Abd-el-Kuri.

Palpimanidæ.

Scelidomachus, *gen. nov.*

Genus of the section *Chedimeæ* with the lateral eyes in contact, and allied to *Steriphopus*, *Boagrius*, and *Sarascelis* in having the anterior median eyes at least twice as large as the laterals, and the ocular quadrangle nearly parallel sided; also further resembling *Steriphopus* in having the quadrangle nearly square (in *Boagrius* and *Sarascelis* it is much wider than long); but differing from it in having the eyes of the anterior line straight, by their inferior borders not recurved, and the anterior median eyes separated by a space which barely equals their radius (in *Sarascelis* the space equals the diameter of the eye).

(3) Scelidomachus socotranus.

♂. **Colour.**—Carapace and sternum deep red, legs of 1st pair paler yellowish red, those of the remaining pairs still paler, abdomen of a uniform reddish grey or testaceous tint.

Carapace coriaceous above, closely granular at the sides, its upper surface between the eyes and the fovea lightly convex longitudinally, scantily clothed with short black hairs. *Legs* normal for the family; femur and patella of 1st pair sparsely but distinctly granular beneath and on the inner side; tibia, protarsus, and tarsus normally scopulate on the inner side; the protarsus, which is about as long as the tarsus, armed apically beneath with a short downwardly directed spiniform process; 2nd, 3rd, and 4th legs unspined, covered with greyish black hairs, the tarsi and protarsi apically scopulate. *Sternum* granular; abdomen thickly covered with a coating of short olive grey hairs. *Palpus* with femur slender; patella short, subglobular; tibia much larger than patella, twice its length, and nearly or quite three times its height, also subglobular; tarsus almost as long as patella and tibia taken together, slender and cylindrical distally; the palpal organ running out into a forwardly directed process with a dilated tridentate extremity; a membranous lobe at its base and a subspirally twisted shorter piece on its inner side.

Total length, 6 mm.

Habitat. Sokotra (Dahamis, 350-1000 ft. (Type); Jena-agahan, 1200-2500 ft.).

Zodariidæ.

(4) Capheris insularis.

♀. **Colour.**—Carapace deep castaneous; legs infuscate, banded and mottled with paler markings; protarsi and tarsi yellowish; abdomen deep greyish black above and at the sides and variegated with pale yellow spots, which posteriorly and laterally arrange themselves in definite transverse and vertical stripes; lower side yellowish white, with two black stripes running longitudinally from the epigastric fold and dividing the pale field up into three broad yellow bands; area in front of sternum black.

Carapace high, higher in front of the fovea than on the ocular area. *Eyes* apparently arranged and practically of the same relative size and distance apart as in the only other species of the genus, the South African *Capheris crassimanus*, Sim. (see Simon, Hist. Nat. Araignées, Vol. I., p. 417, figs. 383 and 384). *Legs* longish and rather slender; 1st and 2nd pairs unarmed, except for a single apical spine on the lower side of the 2nd protarsus; 3rd and 4th pairs with patella, tibia, and protarsi strongly spined, the patella with one pair of spines only, the tibia and protarsi with many. *Palpus* with the tarsus strongly spined inside and beneath, very slightly longer, or, at all events, not shorter than the tibia and not conically acuminate. (In *crassimanus*, the tarsus is shorter than the tibia, and acuminate). *Vulva* consisting of a large, hairy, horny plate, with a pair of impressions in front, and a smooth, transversely semicircular, or subquadrate lobe projecting from its posterior border.

Total length, 11 mm.

Habitat. Sokotra (Homhil, 1500-2500 ft. (Type); Dimichiro Valley). An adult ♀ and an immature ♂.

VIII. Descriptions of Two New Genera and Six New Species of *Orthoptera*.

By Malcolm Burr.

Blattodea.

Phyllodromiidæ.

(1) Loboptera peculiaris.

♂. Testacea, nitida. Antennæ setaceæ. Pronotum antice rotundatum, postice truncatum, antice quam postice angustius. Meso- et meta-nota transversa. Elytra lobiformia, lateralia, mesonoti marginem posticum vix superansia. Alæ nullæ. Caput testaceum, vitta transversa atra inter oculos ornatum; frons vittis duabus longitudinalibus atris ornata. Abdomen dilatatum, castaneum, marginibus pallidioribus; segmentum lateribus macula atra utrinque ornatis. Pedes pallidi; femora spinosissima; tarsi pulvillo minuto inter ungues instructi, segmentum primum tribus sequentibus longius. Lamina supraanalis ♂ obtuse triangularis. Cerci breves. Lamina subgenitalis ♂ triangularis, vel, magis, rotundata, transversa.

Long. corporis .	♂ 11-12 mm.	Lat.	♂ 5 mm.
" pronoti .	" 4-4·25 "		

Habitat. Sokotra, 3 ♂.

This species differs from its congeners by its light shining testaceous colour. The pad between the tarsal claws is also somewhat larger than in the other described species. The genus is essentially South European and Asiatic in distribution.

Mantodea.

Mantidæ.

Teddia, *gen. nov.*

♂. Corpus gracile, elongatum. Oculi rotundati, haud tuberculati. Antennæ gracillimæ. Pronotum elongatum, supra coxas dilatationem parvam efficiens, medio carinulatum, lateribus denticulatis, dorso toto granulato. Prosternum deplanatum, læve, postice saltem granulatum. Elytra et alæ abbreviatæ, hæ fusco-testaceæ, nonnihil purpureatæ, parte anali macula magna fusca ornatæ; illa brevia, apice rotundata, testacea. Pedes graciles; coxæ anticæ longæ; femora antica gracilia, recta, subtus margine externo spinis 5, quarum ultima minima, margine interno spinis 6 majoribus, 6

minoribus alternantibus armatæ; spinæ discoidales 4, quarum prima minima, tertia maxima; spina prima basalis ceteris haud remota. Tibiæ anticæ utrinque spinulis 10 armatæ; tibiæ intermediæ et posticæ apice trispilulosæ; tibiæ posticæ minutissime denticulatæ, vel inermes. Lamina supraanalis magna, dilatata, apice angustata, elongata, compressa.

This genus is much more slender than its allies; it falls into the group *Fischeriæ*. The unarmed posterior tarsus distinguish it from *Ischnomantis*, *Fischeria* and *Sphendale;* the rounded supraanal plate of the male from *Deiphobe* and *Eremoplana;* the long posterior femora from *Solygia*, and the general facies of the insect and its slenderness forbid its confusion with *Bolivaria*.

(2) Teddia dioscoris.

♂. Statura mediocri; gracilis; colore fusco; elytra testacea; alæ testaceæ, purpureatæ.

Variat. Pedes pallidiores, fusco-fasciati et notati.

Long. corporis . .	♂ 40-46 mm.	Long. tibiarum anticarum . .	♂ 4-4·5 mm.
" pronoti . .	" 12-13·5 "	" femorum posticorum . .	" 11·5-13·5 "
" " partis antici	" 4-5 "	" tibiarum posticarum . .	" 13-15 "
" " " postici	" 8-8·5 "	" tarsorum posticorum . .	" 5 "
" elytrorum . .	" 5·25 "		
" coxarum anticarum . .	" 7-8 "		
" femorum anticorum . .	" 8·5-9 "		

Habitat. Sokotra (Dahamis, 21/xii./98).

Acridiodea.

Truxalidæ.

(3) Truxalis ensis.

♀. Viridis. Corpus elongatissimum, cylindricum. Caput minus ascendens; antennæ longæ, deplanatæ, segmentis apicalibus minoribus, capite pronotoque unitis longiores. Pronotum parvum, cylindricum, nec constrictum nec postice dilatatum; carinæ laterales subflexuosæ, postice paullo divergentes; sulcus typicus valde pone medium situs, sinuatus; lobi laterales pronoti antice obtuse-angulati, haud rotundati, carinis cum carinis dorsolateralibus pronoti pæne parallelis. Sternum medio valde carinatum. Elytra longissima, acuminata, viridia, area scapulari venulis transversis obliquis sat remotis venulaque spura instructa. Alæ pulcherrimæ, longæ, angustæ, elytris valde breviores, auriantiacæ, nigro-tesselatæ, apice flavido-hyalinæ. Abdomen typicum. Pedes longissimi, gracillimi; tarsorum ungues longi, pulvillo magno.

Long. corporis . .	♀ 53-63 mm.	Long. alarum . .	♀ 46 mm.
" antennarum .	" 24 "	" femorum posticorum . .	" 37 "
" capitis (a supero)	" 14·5 "	" tibiarum posticarum . .	" 36·75 "
" pronoti . .	" 8-8·25 "		
" elytrorum .	" 52-57 "		

This very fine species is even more slender and elongated than the other members of this extraordinary genus. Characteristic points are the length of the antennæ, which exceed the combined length of the head and pronotum; the golden orange colour of the wings, with black tesselations; the narrow, almost cylindrical head and pronotum; and the great length of the elytra.

It falls into Bolivar's subgenus *Truxalis, sensu stricto*, and into the group of *crocea*, Bol., with brilliantly coloured wings and carinated sternum.

Mastacidæ.

(4) Plagiotriptus insularis.

♀. Parva, testacea. Pronotum altius quam longius, antice paullo productum; lobis deflexis margine posteriore recto, margine anteriore sinuato; meso- et meta-nota perspicue liberans. Pedes antici et tibiæ tarsique intermedii infuscati; tibiæ posticæ haud lobatæ.

Long. corporis . . .	♀ 13 mm.	Alt. pronoti	♀ 7 mm.
" pronoti . (max.)	" 6 "	Long. femorum posticorum	" 8 "
" " . (min.)	" 3 "		

Habitat. Sokotra (Jena-agahan, 2500 ft., 3/i./99).

This species is considerably smaller than *P. hippiscus*. In the shape of the pronotum it approaches rather to an undescribed species in the Brunner Collection, but differs in its smaller size and paler colour.

Phaulotypus, *gen. nov.*

♀. Pronotum caput obtegens, compressum, elevatum, antice et postice acuminatum, postice valde productum, crista margine superiore æqualiter rotundata, venis nullis instructum, totum granulatum. Elytra et alæ nullæ. Caput in modum *Chorœtypi* formatum. Femora antica et intermedia compressa nec dilatata; femora postica valde compressa et dilatata, crista superiori denticulata, lobis genicularibus acuminatis. Tibiæ posticæ curvatæ, haud lobatæ, calcaribus terminalibus margine exteriore minimis, calcare interno maximo: tarsorum segmentum primum minutissime crenulatum. Frons granulata. ♂ ignotus.

This new genus can be easily distinguished from the other genera of the group *Chorœtypi*. The shape of the pronotum, the absence of the lobes on the posterior tibiæ, and the absence of organs of flight distinguish it at once.

(5) Phaulotypus granti.

♀. Parva, castanea, unicolor.

Long. corporis . . .	♀ 14 mm.	Altitudo pronoti . . .	♀ 5·5 mm.
" pronoti . . .	" 9 "	Long. femorum posticorum	" 8·5 "

Habitat. Sokotra (Adho Dimellus, 3500 ft., 5/ii./99).

I have great pleasure in dedicating this curious little novelty to Mr. Ogilvie-Grant, who collected *Orthoptera* so assiduously in Sokotra.

Œdipodidæ.

(6) Dissosteira forbesii.

♂, ♀. Colore fusco-testaceo. Caput obtusum; vertex inter oculos depressus, haud carinulatus; fastigium verticis a fastigio frontis vix divisum; frons valde convexa, carinata; oculi magni, rotundati; antennæ fusco-testaceæ, capite pronotoque unitis longiores. Pronotum carinatum, medio subconstrictum, prozona antice obtusangula, carina subsinuata, haud intersecta; metazona postice rectangula; canthi laterales haud valde prominuli; crista pronoti media sulco typico haud profunde intersecta; lobi laterales angusti. Elytra longa, apice oblique subtruncata, fusco-testacea, vittis 3 fuscis ornata, coriacea, conferte et irregulariter reticulata, tertia tantum parte apicali hyalina, aperte reticulata, maculis non nullis parvis fuscis ornata; vena intercalata subrecta, venæ radiali propinqua. Alæ elytris breviores, angustæ, totæ læte nigro-purpureæ, parte apicali excepta hyalina, apice ipso infumato; partibus hyalina et infumata lobos 2 apicales includentibus. Abdomen nigrum; valvulæ ovipositoris breves. Pedes testacei vel fusci. Femora postica valde incrassata, extus fusco-testacea, intus purpurea, supra pallide-bimaculata, apice pallide-annulata; carina superiori parvo-denticulata; genubus intus nigro-maculata. Tibiæ posticæ basi nigræ, testaceo-annulatæ, dehinc sanguineæ, spinis apice infuscatis utroque margine 10 armatæ, quarum 1-3 minimæ.

	Millim.	Millim.		Millim.	Millim.
Long. corporis	♂ 23·5	♀ 30	Long. femorum posticorum .	♂ 14·75	♀ 16·75
" pronoti	" 5·5	" 6·5-6·75			
" elytrorum	" 24	" 33			

Habitat. Sokotra (Homhil, 2,500 ft., 22/i./99, 1 ♂, 1 ♀; Goahal Valley, near Homhil, 6/i./99, *id.* 200 ft., 27/i./99, 1 ♀; Adho Dimellus, 3500 ft., 11/ii./99).

This species, which I have great pleasure in dedicating to Dr. H. O. Forbes, may be at once recognised by the inky black wings, with only a clear band just before the apex, which is smoky.

IX. Descriptions of Ten New Species of *Hemiptera*.

By G. W. Kirkaldy.

Homoptera.

Cicadidæ.

(1) Melampsalta omar.

Pilosa; nigra, sparse sanguineo-notata, clypei marginibus lateralibus anguste sanguineis; pedibus sanguineo-notatis et annulatis; abdominis ventre sordide flavescente. Rostro coxas intermedias attingente. Tibiis anticis femoribus leviter longioribus; femoribus intermediis posticisque, tibiis anticis intermediisque, inarmatis; tibiis posticis 3 spinis longis, acutis utrimque armatis. Long. corp., 12½ mm., alarum exp. 32 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 15/ii./99; Homhil, 2500 ft., 19 and 26/i./99).

Fulgoridæ.

(2) Elasmoscelis iram.

Nigro fuscus, macula albida laterali elytrorum medio; fronte sanguineo, vittis tribus longitudinalibus virescentibus; pronoto longitudinaliter tricarinato-tuberculato. Long. corp., 6 mm.

Habitat. Sokotra (Hadibu, 11/xii./98).

Heteroptera.

Cacodmidæ.

(3) Klinophilos horrifer.

Castaneus, antennis flavescentibus; pronoti marginibus lateralibus haud reflexis, marginibus antero-lateralibus antrorsum prominulo productis; abdomine posteriorim subrotundato. Long. corp., 4 mm.

Habitat. Sokotra, very common; only one specimen in the collection, Adho Dimellus, 3500 ft., 16/ii./99.

Reduviidæ.

(4) Reduvius azrael.

Niger, antennarum articulo secundo bicolore; membrana fusca, apice albido; femoribus ad partem flavescentibus; connexivo nigro, albo maculato. Abdominis lateribus glabris; tarsis anticis posticisque trisegmentatis; pronoti lobo postico carinis destituto. Long. corp., 15 mm.

Habitat. Sokotra (Adho Dimellus, 3500 ft., 9/ii./99; Alilo Pass, 3500 ft., 3/ii./99).

Myodochidæ.

(5) Geocoris sokotranus.

Niger, antennis pedibusque pallidis; capite impunctato, pronoto scutelloque dense punctatis, hoc longitudinaliter carinato, illius marginibus anterolateralibus distincte rotundatis ac angustatis. Antennarum segmentis 2^{dis} 4^{tis}que inter se subæqualibus, 1^{mo} $2\frac{1}{3}$ plo longiore, 3^{to} $\frac{1}{3}$-plo longiore. Long. corp., $4\frac{1}{4}$ mm.

Habitat. Sokotra (Hadibu Plain, 30/i./98). This species does not fit well into any of Stål's or Fieber's divisions.

(6) Aspilocoryphus forbesii.

Niger, antennarum segmentorum 2^{i} ac 3^{i} partibus basalibus, coxis, &c., testaceis; antennarum segmenti quarti parte basali, pronoti lateribus anticis, femoribus basi, albidis. Long. corp., $10\frac{1}{2}$ mm.

Habitat. Sokotra (Jena-agahan, 1200 ft., 29/i./99; Hadibu Plain, xii./98; Alilo Pass, 3500 ft., 3/ii./99).

Allied to *A. fasciativentris* (Stål).

Lygalidæ.

(7) Leptocoris bahram.

Rufo-luteus, capite, collari, scutello, sanguineis; antennis, pedibus, membrana, nigrescentibus. Iugis apicem versus tylo distincte altioribus, apice paullo prominulis. Pronoto punctato, distincte longitudinaliter carinato, lateribus illius marginalibus angustiuscule reflexis. Segmento genitali marium apice subtruncato, angulis posticis haud productis. Long. corp., 15 mm.

Habitat. Sokotra (Adho Dimellus, 3000 ft., 5, 6, 9/ii./99; Hadibu Plain, xii./98; Hombil, 1200 ft., 17/i./99).

(8) Euthetus granti.

♂. Niger, pubescentia argentea instructus; clypeo ac rostribaso viridescenti-flavo; antennarum segmentorum 1^{i} 2^{i}que basis, prosterni margine antico (in medio excepto), pleurorum marginibus apicalibus, frontis lateribus, testaceis; antennarum segmentis 3^{to} ac 4^{to}, tibiis tarsisque, fuscotestaceis, horum segmentis quoque apice nigro; femoribus sordide fuscis, nigromaculatis, abdominis dorso sanguineo, ventre plus minus sanguineo. Corio (area triangulari clavo-membranali excepta) exocorioque fuscotestaceis. Antennarum segmento quarto tertio $\frac{3}{5}$ plo longiore, hoc secundo triplo longiore,

primo secundo $\frac{3}{5}$ plo longiore. Abdominis segmentis ventralibus 2-4 carinatis.

♀. Nigra, capitis pronotique maculis ac lineis angustissimis seu subobsoletis; ventre-nigro, linea latero-apicali albida abdominis segmenti tertii excepta. Long. corp., 10 mm.

Habitat. Sokotra (Elhé, Hadibu Plain, 30/i./99).

Cimicidæ.

(9) Aspongopus assar.

Niger, antennis unicoloribus; pronoti parte basali, scutello, clavo, corio castaneis. Jugis tylo longioribus et anterius contiguis, marginibus lateralibus nonnihil sinuatis. Corii margine apicali sinuato. Long. corp., 15 mm.

Habitat. Sokotra (Jena-agahan, 1200 ft., 29/i./99).

(10) (?) Chroantha hataska.

Virescens; plus minus flavo-virescente marmorata; marginibus lateralibus anticis scutelli subcallosis, lævigatis; exocorio rufoflavo; abdominis dorso nigro, connexivo pallide virescente, fusco-virescente maculato. Punctata; tylo latiusculo, lateribus subparallelis, jugorum marginibus lateribus distincte sinuatis; pronoto haud carinato, marginibus lateralibus haud seu levissime reflexis, latere prominulis, haud spinosis. Long. corp., $12\frac{1}{2}$ mm.

Habitat. Abd-el-Kuri, 5/xii./98.

Apparently closely allied to *C. ornatula.* (Schäff).

Note on Three rare and not hitherto figured Species of *Zosterops* in the Derby Collection.

By H. C. Robinson.

(Plate I. *Zosteropidæ.*)

Zosterops chlorates, *Hartl.*—Fig. 1 of our plate represents a species originally discovered by Salomon Müller in the Padang Highlands of Sumatra, where he obtained two specimens. The species remained uncharacterised for many years, in the Leyden Museum, and was first diagnosed by Dr. Hartlaub (who, however, erroneously gave the habitat as Morty Island) in his monographic essay on the genus in the "Journal für Ornithologie," 1865, p. 23.

It was re-discovered in 1880 in Southern Sumatra by Mr. H. O. Forbes, at over 10,000 ft., on the summit of the Dempo Volcano in the Palembang Residency, feeding on the flowers of a species of *Vaccinium (V. forbesii).* He obtained six specimens, one of which is in the British Museum, three are in the Liverpool Museum, while the fate of the remaining two is unknown.

Besides the types of the species at Leyden and the above-mentioned specimens, we are unaware of the existence of any other representatives of this rare bird in European collections.

Zosterops aureiventris, *Hume*, represented in Fig. 2, seems to be nearly related to *Z. palpebrosa*, Temm., from Peninsular India. It is characterised by the broad stripe of sulphur yellow running down the centre of the abdomen. It occurs in Burmah, Tenasserim, the Malay Peninsula, Sumatra, and Western Java. The specimen figured is a male from the last-mentioned locality, obtained by Mr. H. O. Forbes.

Zosterops griseiventris, *Sclat.* (Fig. 3), is apparently nearly allied to *Z. citrinella*, Bp., of the lesser Sunda Islands and Eastern Java, and is the representative of the genus in the Tenimber Islands. The specimen figured, a female from Larat, is a Co-type of the species, and was discovered by Mr. H. O. Forbes in 1882 during his exploration of Timor-laut. The Type is in the National Collection.

Birds in the Derby Museum collected in the Antarctic Regions.

In view of the great interest attaching, at the present time, to the natural history of the Antarctic Continent, it may not perhaps be amiss to give a short account of the birds from that region now contained in the Liverpool Museums.

The birds are entirely derived from the Antarctic Expedition of H.M.SS. *Erebus* and *Terror* and were either collected by Sir (then Dr.) Joseph Hooker, the Assistant-surgeon of the *Erebus*, and presented through his father to the XIIIth Lord Derby, or else purchased by the Earl from members of the crew (through a London dealer named Isaacson), with the exception of one or two specimens in the Tristram Collection, presented to the Canon by their collector, Dr. Gunn, who was also attached to the expedition.

The following is the list of species in this Museum :—

ANSERES.

Nettion flavirostre (*Vieill.*).

The Museum contains a nearly adult specimen of this species, marked "Victoria Land, South Polar Expedition." This is the first record of this bird from the Antarctic regions.

LIMICOLÆ.

Chionis alba (*Gm.*).

Our specimen of this Sheathbill was shot by Dr. Gunn, of H.M.S. *Terror* on the Antarctic Continent, in Lat. 78° S (*cf.* Tristram, Ibis, 1895, p. 165).

Ægialitis falklandica (*Lath.*).

This is an adult specimen from Victoria Land of a bird (in incipient breeding plumage) not hitherto recorded from Antarctica.

TUBINARES.

Prion banksi, *Gould.*

Collected off Victoria Land, Lat. 74° S, by Dr. J. Hooker. This is the first record of this species also from the Antarctic regions.

Pagodroma nivea (*Gm.*).

Of this species there are two specimens from Antarctica in the Museum ; one collected by "Dr. W. Gunn, R.N., H.M.S. *Terror* shot from the shore by himself" (Tristram, Cat. Coll. Birds, p. 6, 1889); and another labelled "♂ Victoria Land."

PYGOPODES.

Podicipes calipareus, *Less.*

We have one male in breeding plumage from Victoria Land labelled as having been shot by the Acting Master, Pownall P. Cotter, of H.M.S. *Terror*. This species has not hitherto been recorded from Antarctica.

STEGANOPODES.

Phalacrocorax atriceps, *King.*

"Found on a little island, Lat. 64° S, Long. 57° W" (?J. D. Hooker).

Dr. M'Cormick notes having observed cormorants at Louis Philippe Land (*cf.* "Ross's Voyage to the Southern Seas," Vol. ii., App. iv., p. 420, 1847).

IMPENNES.

Aptenodytes forsteri, *G.R.Gr.*

The Derby Museum possesses of this rare species an adult, an immature specimen and a skeleton, labelled "Antarctic Seas."

Pygoscelis adeliæ (*Hombr. & Jacq.*).

Three specimens of this bird are in the Museum; two adult birds (one sexed as a female) and an immature bird labelled "Antarctic Seas, Lat. 65° S, Long. 60° W."

The Museum possesses an egg, undoubtedly that of a penguin, labelled by (?) Dr. Hooker, "Penguin, Island 64° S, Jan. 6, 1843." From "Ross's Voyage to the Southern Seas," ii. pp. 335, *et seq.* (1847), we find the position quoted must be Cockburn Island, where Dr. Hooker landed on the 6th January for some three hours, and where, "Besides penguins [*P. adeliæ*] and cormorants [*Ph. atriceps*] innumerable, we found the beautiful white petrel [*Pagodroma nivea*] building its nest in the precipitous cliffs, about the debris which covers the sides and shores of the island, to the height of fourteen hundred feet from the beach. The eggs of this bird, which have never before been seen, are 2·2 inches long, 1·6 inch broad, and weigh from six hundred to seven hundred and fifty grains; they are of a bluish white colour, and only one egg, with the young in a forward state, was found in each nest, which was formed of a few feathers on the bare rock. The young birds are of a deep lead colour." There is also another egg in the collection from the same locality labelled, in the same hand as the penguin's, "King Shag, Lat. 64·15° S, 6th January, 1843," which is almost certainly that of *Ph. atriceps*, of which we have a skin procured on the same day.

The two latest writers on the birds of Antarctica, Schalow (J.f.O., 1897, p. 524), and Sclater (Ibis, 1898, p. 429) record altogether twenty-two species, of which two are unidentified. The above list, if the localities are to be trusted —which we see no reason whatever to doubt—adds no less than three orders and five species to the list.

The complete enumeration of the birds recorded from Antarctic latitudes is therefore as follows:—

PASSERES.

1 **Corvus,** *sp. inc.*

ANSERES.

2 **Chlœphaga,** *sp. inc.*
3 **Nettion flavirostre.**

LIMICOLÆ.

4 **Chionis alba.**
5 **Ægialitis falklandica.**

LARI.

6 **Sterna hirundinacea.**
7 **Larus dominicanus.**
8 **Leucophæus scoresbyi.**
9 **Megalestris antarcticus.**
10 **Megalestris maccormicki.**

TUBINARES.

11 **Phoebetria fuliginosa.**
12 **Oceanites oceanicus.**
13 **Majaqueus æquinoctialis.**
14 **Priocella glacialoides.**

15 **Priocella antarctica.**
16 **Ossifraga gigantea.**
17 **Daption capensis.**
18 **Prion vittatus.**
19 **Prion banksi.**
20 **Prion desolatus.**
21 **Pagodroma nivea.**

PYGOPODES.

22 **Podicipes calipareus.**

STEGANOPODES.

23 **Phalacrocorax atriceps.**

IMPENNES.

24 **Aptenodytes forsteri.**
25 **Pygoscelis adeliæ.**
26 **Pygoscelis papua.**
27 **Pygoscelis antarctica.**

Note on the Eggs of ***Pagodroma nivea.***—The collections officially made during the voyage of H.M.SS. *Erebus* and *Terror*, were presented to the British Museum by the Lords of the Admiralty. Since the above list was in type, Mr. Oates, who is now engaged in cataloguing the eggs in the Natural History Museum in Cromwell Road, has kindly searched on my behalf the collection for specimens of this egg, but he has failed to find any eggs of the "white petrel," or any which indicate their having been obtained at Cockburn Island, or on the 6th January, 1843. It is just possible that the eggs collected by Dr. Hooker on that day, and now in the Derby Museum, may have been supposed by Sir J. Ross to be those of the white petrel, while in reality they are the eggs of the *Phalacrocorax atriceps*.

Catalogue of the Charadriomorphic Birds (Charadriformes): Auks (Alcidæ), Gulls (Laridæ), and Skuas (Stercorariidæ)—Lari; Lark-plovers (Thinocoridæ), Stone-curlews (Œdicnemidæ), Jaçanas (Jacanidæ), Sheathbills (Chionidæ), Crab-plovers (Dromadidæ), Coursers (Cursoriidæ), Plovers and Snipes (Charadriidæ)—Limicolæ; Pigeons (Columbæ), and Sand-grouse (Pterocles), in the Derby Museum.

By Henry O. Forbes and Herbert C. Robinson.

Note.—*The arrangement and nomenclature followed in this Catalogue are substantially those adopted in the 'Catalogue of Birds in the British Museum,' Vols. XXVI., XXV., XXIV., XXI. and XXII., by Messrs. W. R. Ogilvie-Grant, Howard Saunders, Dr. R. Bowdler Sharpe and Count Salvadori. All the species described since the publication of these volumes, known to us up to September, 1899, are enumerated, and have their original (or translated) diagnoses inserted. The names of species desiderata to our collection are printed in Grotesque type, thus*—snowi.

For explanation of the abbreviations used below, see Note, page 15.

Lari.

ALCIDÆ.

ALCINÆ.

PLAUTUS, *Brünnich.*

impennis (*Linn.*).

The Museum contains a nearly complete skeleton from Funk Island, and a fairly perfect skull, as well as a very beautiful egg, whose origin is unknown. The latter is referred to by Symington Grieve in his volume on *The Great Auk*, p. 88, App. p. 29, 1885.

ALCA, *Linn.*

torda, *Linn.* Nineteen. 2 ♂, 4 jr., 1 pull. Hebrides (Stornoway). England (Farne Islands, June; Yorkshire, Scarborough, August; Devonshire, Plymouth, February). Nova Scotia, February.

ALLE, *Link.*

alle (*Linn.*). Thirteen. 2 ♂, 2 ♀ (1 jr.), 1 jr. Iceland. Orkneys, October. England (Durham, Greatham, November; Yorkshire, Scarborough, January, February).

URIA, *Briss.*

troile, *Lath.* Thirty. 5 ♂, 5 pull, skel. Orkneys (Stromness, April). England (Durham, Greatham; Northumberland, Bamborough, April, June; Farne Islands, August; Yorkshire, Flamborough Head, July; Lancashire, Garston, June; Anglesea; Sussex, Selsey Bill, November; Eastbourne, December; Hampshire, Christchurch, December). Heligoland. Kamtschatka.

lomvia (*Pall.*). Four. Iceland. Arctic America.

No. 4 from Arctic America was collected by Mr. David Walker, Naturalist to S.S. *Fox*, the vessel fitted out by Lady Franklin, in 1857, to complete the search for Sir John Franklin.

grylle (*Linn.*). Twenty-nine. 6 ♂ (2 jr.), 5 ♀ (1 jr.), 1 pull., 2 skels. Norway (Christiansund, August, September, November, December). Orkneys (Stromness, January, April). Lewis. England (Northumberland; Yorkshire, Scarborough, January).

mandti, *Licht.* Five. 1 ♀. Arctic America (Melville Island; Winter Island, March). Alaska (Point Barrow, December).

columba (*Pall.*). Three. 1 ♂. Alaska, May. Kamtschatka.

snowi (*Stejn.*); carbo (*Pall.*).

BRACHYRHAMPHUS, *Brandt.*

marmoratus (*Gm.*). Three. [Hudson's Bay]. Queen Charlotte Island, December.

perdix (*Pall.*). One. ♀. Japan (Hakodati, May).

brevirostris (*Vig.*).

ENDOMYCHURA, *Oberholser.*

Oberholser has shown (Proc. Acad. Philad. 1899, p. 201) that *Micruria*, Grant, is preoccupied, and consequently untenable.

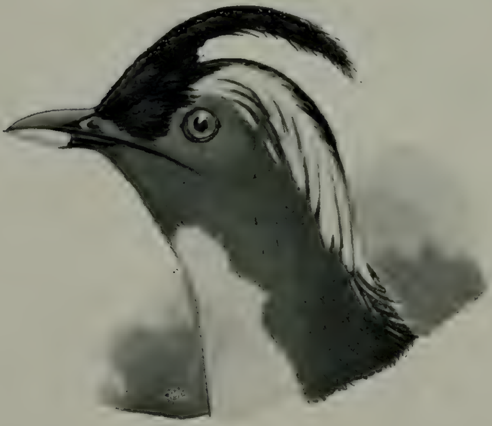
hypoleuca (*Xantus*); craveri (*Salvad.*).

SYNTHLIBORHAMPHUS, *Brandt.*

T **antiquus** (*Gm.*). Nine. 2 ♂. Japan (North-East Coast; Yokohama; Idsu-no-kumi; Nippon, Tsuruga, February).

No. 9, purchased by Lord Derby at the sale of the Leverian Museum, is the Type of *Ancient Auk*, Lath. Gen. Syn. iii., pt. 1, p. 326 (1785), and consequently of the species.

wumizusume (*Temm.*). One. Japan.



HEAD OF *Synthliborhamphus wumizusume*, IN BREEDING PLUMAGE.

FRATERCULINÆ.

PTYCHORHAMPHUS, *Brandt.*

aleuticus (*Pall.*). One. Behring Straits.

SIMORHYNCHUS, *Merrem.*

cristatellus (*Pall.*). Seven. 1 ♂. North-West America. Kamtschatka. Off North-East Coast of Japan, Lat. 40° N., Long. 142° E., February.

pygmæus (*Gm.*). Three. 1 ♀. Kurile Islands.

T pusillus (*Pall.*). Six. 2 ♂, ♀. Japan (Hakodati, March).

No. 6, purchased by Lord Derby at the sale of the Bullock Collection, is the Type of *Minute Auk*, Lath. Gen. Hist. x. p. 72 (1824).

PHALERIS, *Temm.*

psittaculus (*Pall.*). Two. 1 ♀. Kurile Islands. Pribyloff Islands (St. Paul's, June).

CERORHYNCHA, *Bp.*

monocerata (*Pall.*). Three. 3 ♂. Japan (Hakodati, May).

LUNDA, *Pall.*

cirrhata (*Pall.*). Seven. ♂, ♀. Kamtschatka.

FRATERCULA, *Briss.*

arctica (*Linn.*). Eight. 1 ♂, 1 jr. Grimsey Island. England (Northumberland, Bamborough, April; Yorkshire, Flamborough Head).

No. 8 was collected by Mr. David Walker (*cf. supra* under *Uria lomvia*).

corniculata (*Naum.*). Four. Kamtschatka.

LARIDÆ.

STERNINÆ.

HYDROCHELIDON, *Boie.*

leucoptera (*Meisn. & Schinz*). Eight. ♂. Baltic ("Worsholmla"? Bornholm, June). Egypt (Damietta). Central Africa (Nyassaland, Lake Shirwa, December). South Africa (Transvaal, Potchefstroom, November). South Australia.

hybrida (*Pall.*). Seven. ♂, ♀. Algeria (Lake Halloula, May). South Africa. Southern India (Nellore). Philippine Islands (Luzon, Cataguan).

nigra (*Linn.*). Eight. 2 ♀. England (Yorkshire, Flamborough Head, September; Norfolk; Cambridgeshire, Littleport, March: Waterbrash). Algeria (Lake Halloula, May; Algiers, October). West Africa (Goree, December).

surinamensis (*Gm.*). Four. ♂. United States (Illinois; Dakota, Pembina, June). North-West America.

PHAËTHUSA, *Wagl.*

magnirostris (*Licht.*). Two.

GELOCHELIDON, *Brehm.*

anglica (*Mont.*). Six. 2 ♂, ♀. Tunis (Jerba Island). Southern Europe (Dobruschka). Asia Minor (Smyrna). North Australia.

HYDROPROGNE, *Kaup.*

caspia (*Pall.*). Nine. ♀, jr., pull. Egypt (The Nile). West Africa

(Gambia, Bathurst, April). Persia (Fao, February). China (Amoy, January). Tasmania (Actæon Island). New Zealand.

SEENA, *Blyth.*

aurantia (*J. E. Gray*). Six. ♀. Northern India (Mhow, February; Mirzapore, March). Southern India (Nellore).

STERNA, *Linn.*

melanogaster, *Temm.* Five. Southern India (Nellore). Assam.

forsteri, *Nutt.* One. ♂. United States (Virginia, Cobb's Island, July).

albistriata (*G.R.Gr.*). Four. 2 ♀. New Zealand (Canterbury, July; Port Cooper).

virgata, *Cab.* One. Kerguelen Island.

vittata, *Gm.*

hirundinacea, *Less.* Three. Chili.

fluviatilis, *Naum.* (= *S. dougalli,* Mont., spms. *c*, *d*, Tristr. Cat. Coll. Birds, p. 9). Thirty. 3 ♂ (1 jr.), 4 ♀ (1 jr.), 6 jr. Venezuela (Cumana). England (Northumberland, Bamborough, July; Durham, Greatham, September; Yorkshire, Scarborough, August, September, October). Syria (Lake of Antioch, June). South Africa (Damaraland, Walvisch Bay, November).

This is the specimen referred to by Gurney in Andersson's *Birds of Damaraland*, p. 362.

macrura, *Naum.* Twenty. 5 ♂, ♀, jr. Orkney Island (Sanday, June). England (Northumberland, Bamborough, July). Kamtschatka. Arctic America. Alaska (Chernobuso Island, July).

No. 15 was collected by Mr. David Walker (*cf. supra* under *Uria lomvia*).

longipennis, *Nordm.* Three. Kurile Islands. Kamtschatka. Philippine Islands (Luzon, Manilla).

We cannot find that this species has hitherto been recorded from the Philippines.

albigena, *Licht.*

T dougalli, *Mont.* Ten. 4 ♂, ♀, pull. Jamaica. Bermuda (Castle Harbour). Scotland (Firth of Clyde). Mediterranean (off Minorca, May). West Australia (Houtman's Abrolhos, South Island, January). New Caledonia (Noumea, September, October).

No. 7, presented to Lord Derby by Col. Montagu, and Nos. 8 and 9, purchased at the sale of Dr. Macdougall's Collection, are probably the Types of the species. No. 6, from Houtman's Abrolhos, is probably one of the Types of *Sterna gracilis*, Gould, P.Z.S. 1845, p. 76.

cantiaca, *Gm.* Eight. 2 ♂, ♀, jr. England (Northumberland, Bamborough, April, July; Durham, Teesmouth, May; Yorkshire, Flamborough Head, July; Norfolk, Yarmouth). South Africa.

maxima, *Bodd.* Three. Mexico (Mazatlan). Jamaica.

The two specimens from Jamaica, which formed part of the Gosse Collection, were at one time considered by Mr. Howard Saunders (who was, however, in ignorance of the locality) to belong to *S. bernsteini*. The specimens which are in winter plumage, are moulting their primaries, and are apparently somewhat immature, as the tail feathers are much darker than a specimen from Mazatlan, which is quite adult.

elegans, *Gambel.* One. ? Chili.

eurygnatha, *Saunders.*

media, *Horsf.* Six. 2 ♂. Algeria (Algiers, November). Abyssinia. West Africa. South Africa (Port Natal). Australia.

bergii, *Licht.* Twenty-three. 4 ♂ (1 jr.), ♀, jr., pull. Egypt (Suez, February). South Africa (Port Natal). Madagascar. Borneo (Labuan, November). West Australia (Rottnest Island). Northern Australia (Raine Island, June; Lizard Island, May; Moreton Bay). Tasmania (Southport, December; Georgetown, September). Solomon Islands (Rendova, August). New Hebrides (Aneityum). Society Islands (Huaheine, August).

The Madagascar specimens approach *S. bernsteini* in being very much paler grey on the mantle.

"This bird is not scarce at Georgetown (Tasmania); but difficult to procure, as it frequents the reefs in the river." (Ronald Gunn, MS. Journal in Mus. Derb.).

bernsteini, *Schleg.*

frontalis, *G.R.Gr.* Six. ♂, 2 ♀, jr. New Zealand (Nelson, May; Port Cooper).

aleutica, *Baird.* One. Alaska (St. Michael's).

lunata, *Peale.*

This species, though taken over with the Tristram Collection, cannot now be found.

anæstheta, *Scop.* Sixteen. 5 ♂ (1 jr.), 2 ♀. Bermuda. Sumatra. Malay Peninsula (Penang). "China Seas." Arafura Sea, October. Northern Australia (Darnley Island, April; Solitary Island, August; Bramble Cay, May).

fuliginosa, *Gm.* Twenty-six. 6 ♂ (1 jr.), 2 ♀, 2 juv., 5 pull. United States. Bermuda. Philippine Islands (Luzon, Cataguan). West Australia (Houtman's Abrolhos, South Island, January, February). Northern Australia (Raine Island, June). Norfolk Island. Samoa. Howland Island. Marquesas, March.

balænarum, *Strickl.* Two. South Africa (Damaraland; Robben Island, November).

T nereis (*Gould*). Three. ♂, jr. West Australia (Garden Island, December). Queensland (Moreton Bay). New Caledonia (Ansevata, August).

No. 2, from Garden Island, is probably one of the Types of the species.

sinensis, *Gm.* Four. South-West Formosa.

minuta, *Linn.* Seven. 4 jr. Algeria (Algiers, October).

saundersi, *Hume.* One.

A single specimen in the collection, without locality, probably belongs to this species. It has the three outer primaries black, as also their shafts, but has no black tip to the bill, which is entirely yellow.

antillarum (*Less.*). Two. ♂. United States (Virginia, Texas).

superciliaris, *Vieill.*

lorata, *Phil. & Landb.* Two. Peru (Callao).

melanauchen, *Temm.* Nine. 3 ♂, ♀, jr. South Andaman Islands, May. Malay Peninsula (Penang). Borneo (Baram). Morty Island, September. Waigiou. Torres Straits (Ipili Reef, June).

trudeauii, *Aud.* Two. Chili.

NÆNIA, *Boie.*

T inca (*Less.*). Nine. "West Coast of South America." Peru. Chili.

No. 1, from the West Coast of South America, purchased by Canon Tristram at the sale of the Jardine Collection, is the Type of *Inca mystacalis*, Jard. Contrib. Orn. p. 33 (1850).

PROCELSTERNA, *Lafresn.*

cærulea (*F. D. Bennett*). Two. Fanning Island.

cinerea (*Gould*). Four. Norfolk Island. South Pacific (San Ambrosio Island, July).

ANOUS, *Steph.*

stolidus (*Linn.*). Twenty-five. 4 ♂ (1 jr.), 3 ♀, pull. United States (Florida, Tortugas Keys). South Africa (Mozambique Channel). Arabian Sea (Lat. 16° 50 N., Long. 63° 36 E., July). West Australia (Houtman's Abrolhos, South Island, December). Northern Australia (Darnley Island, April; Raine Island, June). Norfolk Island. New Hebrides. Samoa. Society Islands (Huaheine). Marquesas.

stolidus, *subsp.* ridgwayi, *Anthony Auk*, xv., p. 37 (1898).

"Much darker and less brown than *A. roussaui*, resembling in this respect *A. galapagensis*, from which it differs in much paler cap. Chin, throat, neck, and chest uniform deep brownish slate, but darker on the lores and above the eyes. A small white spot on the upper posterior border of the eyelid. Lower lid white for nearly its entire length. Cap delicate pearly grey, almost silvery white on the anterior portion, in some lights gradually blending with colour of nape on the occiput. Rest of plumage deep slaty brown; primaries blackish. Wing, 263 mm.; tail, longest feather, 160; graduation, 53; culmen, 40; depth, 11; tarsus, 25." (*Anthony*). *Habitat.* Cocos and Socorro Islands, Pacific Ocean.

stolidus, *subsp.* galapagensis, *Sharpe.*

MICRANOUS, *Saunders.*

T tenuirostris (*Temm.*). Two. ♂, ♀. West Australia (Houtman's Abrolhos, South Island, February, December).

These specimens are probably Co-types of *Anous melanops*, Gould, P.Z.S. 1845, p. 103.

T leucocapillus (*Gould*). Ten. ♂, 2 ♀, juv. "Australian Seas." Northern Australia (Raine Island; Cape Upstart, May). Solomon Islands (Bugotu). Pelew Islands. Fanning Island.

Nos. 8 and 9, ♂, ♀, from Raine Island, are probably Co-types of the species. *Cf.* Gould, P.Z.S., 1845, p. 103.

hawaiiensis (*Rothsch.*).

GYGIS, *Wagl.*

candida (*Gm.*). Ten. ♂, ♀, jr. Seychelles (St. Anne's, March). Norfolk Island, January. Tonga Islands (Eooa, February). Marquesas, March. Fanning Island.

microrhyncha, *Saunders.* Two. Marquesas, March. "South Seas."

RHYNCHOPINÆ.

RHYNCHOPS, *Linn.*

nigra, *Linn.* One.

intercedens, *Saunders.*

melanura, *Swains.* Seven. 1 ♂. Chili.

flavirostris, *Vieill.* Two. Egypt (The Nile). West Africa (Lagos).

albicollis, *Swains.* Four. ♀. Southern India (Nellore). Burmah (Thayetmyo, December).

LARINÆ.

XEMA, *Leach.*

sabinii (*J. Sabine*). Three. ♀, jr. "Arctic America." Alaska (St. Michael's, July).

furcata (*Neboux*).

RHODOSTETHIA, *Macgill.*

rosea (*Macgill.*). Two. ♂, jr. Alaska (Point Barrow, September).

LARUS, *Linn.*

minutus, *Pall.* Five. 2 ♂, ♀. England (Yorkshire, Bridlington, September). Tunis, January. "Mediterranean," April.

ichthyaëtus, *Pall.* One. ♂. Palestine (Sea of Galilee, February).

melanocephalus, *Natt.* Four. ♀. Malta, January. Southern Europe (Dobruschka).

T saundersi (*Swinh.*). One. ♀ jr. China (Amoy, O-sen-keo, February).
Co-type of the species (P.Z.S. 1871, p. 273).

philadelphia (*Ord.*). Three. Jr. Vancouver Island, September.

serranus, *Tschudi.*

franklini, *Swains. & Rich.* One.

atricilla, *Linn.* Seven. United States (New Jersey). British Honduras (Belize).

cirrocephalus, *Vieill.* Seven. ♂, 3 ♀ (1 jr.). West Africa (Gambia, Bathurst, October, November; British Combo, Cotu, September). Central Africa (Nyassaland, Lake Shirwa, December). South Africa (Natal, April).

maculipennis, *Licht.*

glaucodes, *Meyen.* Twelve. ♂, ♀. Chili. Falkland Islands.

ridibundus, *Linn.* Twenty-two. 7 ♂ (2 jr.), 4 ♀ (1 jr.), 2 jr. England (Lancashire, Southport, October, November; Yorkshire, Scarborough, March; Norfolk, Cromer, January; Sussex, Eastbourne, January). Greece (Navarino, February). Palestine (Nahr-el-Kelb, November; Tiberias, February).

brunneicephalus, *Jerd.* One. ♂. South East Mongolia (Lob Noor).

leucophthalmus, *Temm.* One.

hemprichi (*Brüch.*). Four. 2 ♂ jr., 2 ♀ jr. Southern Arabia (Aden, February, November). Mekran Coast (Gwader, February).
The Aden specimens, collected by Forbes and Grant on the Sokotran expedition, which are all immature, are somewhat greyer in colouration than the specimen from the Mekran Coast, therein resembling immature *L. leucophthalmus;* from which, however, they are at once distinguished by the much more robust bill.

fuliginosus (*Gould*).

modestus, *Tschudi.* Seven. ♂, 2 jr. Chili.

heermanni, *Cass.* One. Jr. Mexico (Mazatlan).

belcheri, *Vig.*

crassirostris, *Vieill.* Six. ♂ jr., ♀, jr. Korea (Salee River, August). Japan (Hakodati, March, June).

gelastes, *Thiénem.* Four. ♀, 1 jr. Tunis, January. Persia (Fao, February).

bulleri, *Hutton.*

novæ-hollandiæ, *Steph.* Nine. 2 ♂, ♀ jr. Northern Australia (Raine Island, September, November). Tasmania. Norfolk Island. New Caledonia (Noumea, August; Ansevata, September).

scopulinus, *G.R.Gr.* Five. ♀. New Zealand (Wellington).

hartlaubi (*Brüch*). One. South Africa.

marinus, *Linn.* Sixteen. ♂, ♀ jr., 2 jr., 7, pull, skel. England (Durham, Greatham; Lancashire, Crosby, December; Yorkshire, Scarborough, January; Cornwall, Falmouth, February). Orkneys.

dominicanus, *Licht.* Seventeen. ♂, 2 ♀, 7 jr. Chili. South Africa. Kerguelen Land. New Zealand (Wellington, January, March; Dunedin, May).

fuscus, *Linn.* Fourteen. 3 ♂, ♀ jr., 2 jr., 5 pull. Orkneys (Pegwall Bay). Scotland (Ailsa Craig, October). England (Hants, Mottisfont, August). Egypt (Boulac, March). Syria (Beyrout, November). Palestine (Tiberias, April).

affinis, *Reinh.* One. Southern Arabia (Aden, November).

occidentalis, *Aud.*; schistisagus, *Stejn.*

argentatus, *Linn.* Twenty. ♂ jr., 2 ♀, 6 jr., 5 pull. England (Sussex, St. Leonard's, January). France (Biarritz).

cachinnans, *Pall.* Two. ♂. Canary Islands (Teneriffe, Oratava, May; Isla Graciosa, April).

vegæ, *Palmén.*

audouini, *Payr.* Two.

delawarensis, *Ord.*; californicus, *Lawr.*

canus, *Linn.* Eighteen. 3 ♂, 3 ♀, 4 jr., 3 pull. Orkneys. England (Northumberland, Bamborough, April; Durham, Castle Eden, January; Greatham, January; Lancashire, Southport, October; Harrow, December; Norfolk, Hampstead, January). Palestine (River Kishon, December; Hhora, February).

brachyrhynchus, *Rich.*

glaucescens, *Naum.* One. Kamtschatka.

nelsoni, *Henshaw*; kumlieni, *Brewst.*

glaucus, *Brünn.* Eight. 4 ♀ (3 jr.). Arctic America (Wellington Channel) Shetland Islands (Balta Sound, April). England (Yorkshire, Bridlington December; Scarborough, January).

No. 8 was collected by Mr. David Walker (*cf. supra* under *Uria lomvia*).

T leucopterus, *Faber.* Four. ♂ jr. Arctic America (Davis Straits, July). Iceland. Shetland Islands (Barra Firth, November).

No. 1, from Davis Straits, collected by Capt. [Sir Edward] Sabine, is probably the Type of *Larus argentatus*, E. Sabine (*nec* Gmelin), Trans. Linn. Soc. xii. p. 546 (1819).

GABIANUS, *Brüch.*

pacificus (*Lath.*). Six. 2 ♀ jr., 3 jr., pull. Tasmania (Launceston, September, November). Actæon Island.

"Abundant on the sea-coast and about Georgetown; it is also not infrequent on the Tamar as high as Launceston, where the salt water ceases. Iris light brown; bill black at tip, white at base; legs dirty white" (R. Gunn, MS. Journal in Mus. Derb.).

LEUCOPHÆUS, *Brüch.*

scoresbii (*Traill.*). Five. Straits of Magellan (Trinidad Channel, Alert Bay, October).

PAGOPHILA, *Kaup.*

eburnea (*Phipps.*). Six. ♂, 2 jr. Arctic America (Melville Island; Wellington Channel). Spitzbergen.

RISSA, *Steph.*

tridactyla (*Linn.*). Twenty-four. 2 ♂, ♀ (jr.), 4 jr. Ireland (Galway). England (Durham, Castle Eden, May; Cheshire, Hilbre Island, September; Yorkshire, Scarborough, November; Norfolk, August; Sussex, Eastbourne). Kamtschatka. Arctic America (Davis Straits, October).

brevirostris (*Brüch.*). One. ♀. Pribyloff Islands (St. George's, July).

STERCORARIIDÆ.

MEGALESTRIS, *Bp.*

catarrhactes (*Linn.*). Five. ♂. Shetland Islands.

chilensis (*Bp.*).

antarctica (*Less.*). Two.

maccormicki (*Saunders*).

STERCORARIUS, *Briss.*

pomatorhinus (*Temm.*). Eight. ♀, 3 jr. Scotland (Morsgail). England (Yorkshire, Flamborough Head; Lancashire, Crosby, December; Norfolk, Yarmouth, October).

crepidatus (*Banks*). Fifteen. 2 ♂, ♀, 3 jr., pull. Scandinavia. Orkneys (Hoy). Scotland (Firth of Forth). England (Yorkshire, Flamborough Head, July; Cheshire, Hoylake).

parasiticus (*Linn.*). Ten. ♂, 2 ♀. Arctic America (Wellington Channel; Melville Peninsula (Iglvolik, June; Lat. 75½° N., Long. 60° W., July, collected by Captain [Sir Edward] Sabine).

Limicolæ.

THINOCORIDÆ.

ATTAGIS, *Less.*

gayi, *Less.* Five. "Cordilleras," Peru? Bolivia (Tapaquilcha, 14,000 ft.). Chili.

chimborazensis, *Sclat.* One. Peru.

Probably collected by Matthews. The specimen was presented by Dr. [Sir Wm.] Hooker in February, 1843, and there is the following note on the label:—"Probably a new subgenus connecting Perdix or Ortyx." The specimen perfectly agrees with Messrs. Sclater & Salvin's figure (Exotic Orn. p. 157, pl. lxxix., 1869).

malouinus (*Bodd.*).

THINOCORUS, *Eschscholtz.*

rumicivorus, *Eschscholtz.* Nine. 7 ♂, 2 ♀. Chili.

orbignianus, *Geoff. & Less.* Eight. 3 ♂, 5 ♀. Chili.

ŒDICNEMIDÆ.

ŒDICNEMUS, *Temm.*

œdicnemus (*Linn.*). Eighteen. ♂, 3 ♀, 5 pull. England (Norfolk). Canary Islands (Isla Graciosa, April). North Africa (Algerian Sahara, Ain Djendeli, June; Karkaneh Islands (March). Palestine (Jericho, December). Northern India (Calcutta; Maunbhoom, March).

senegalensis, *Swains.*

vermiculatus, *Cab.* Two. ♂, ♀. Natal.

buttikoferi, *Rchnw.* Ornith. Monatsber. vi. p. 182 (1898).

"Closely allied to *Œ. vermiculatus*, but the general colour of the upper surface somewhat greyer, the darker vermiculations on the scapulars, innermost wing feathers, and upper tail-coverts indistinct, and the bill considerably more robust. Bill, 50-53; height at nasal aperture, 13; total length, 350-370; wing, 200-210; tail, 110-115; tarsus, 75-80 mm." (*Reichenow*). *Habitat.* Liberia.

bistriatus (*Wagl.*) (= *Œ. grallarius* (Lath.), Tristr. Cat. Coll. Birds, p. 24). Three. Antilles. Guatemala (Awachappa). [South Australia—collected by Peele].

dominicensis, *Cory.*

superciliaris, *Tschudi.* One.

capensis, *Licht.* Seven. South Africa (Damaraland, Otjimbinque, September).

affinis, *Rüpp.*

BURHINUS, *Ill.*

grallarius (*Lath.*). Four. ♂. Eastern Australia (Queensland, Port Stephens, April; New South Wales).

ESACUS, *Less.*

recurvirostris (*Cuv.*). Four. Northern India (Dehra Dhoon; Bengal, June). Southern India (Godavery River, February).

ORTHORHAMPHUS, *Salvad.*

magnirostris (*Vieill.*). Four. 1 ♂. North-West Borneo. South-East New Guinea (Port Moresby). Solomon Islands (Rendova, August; Florida).

MILNEA, *Lydek.* (Fossil).

gracilis, *Lydek.*

JACANIDÆ.

HYDROPHASIS, *Wagl.*

chirurgus (*Scop.*). Seventeen. 3 ♂ (1 jr.), 4 jr. Northern India (Depalpur, January; "Kashin," July; Santhall Country). Malay Peninsula (Malacca). Java. Philippine Islands (South Luzon).

METOPIDIUS, *Wagl.*

indicus (*Lath.*). Nine. 1 ♂. Northern India (Muddapur). Java.

ACTOPHILUS, *Oberholser.*

This name is substituted by Mr. Oberholser for *Phyllopezus*, Sharpe, which is preoccupied (Proc. Philad. Acad. 1899, p. 220).

africanus (*Gm.*). Fourteen. 2 ♂, ♀, jr. West Africa (British Combo, Barcote, April; Gold Coast, River Addo). Central Africa (Ghaba Shambé, July; Zambesi, Nyassaland, Upper Shiré, November). South Africa (Transvaal, Barberton Sabé Flats, March; Port Natal).

albinucha (*Is. Geoffr.*). Two. 1 ♂. Madagascar.

HYDRALECTOR, *Wagl.*

gallinaceus (*Temm.*). Five. 2 ♂. North Celebes (Gorontalo, September). Northern Australia (Port Essington, November; Cape York).

novæ-guineæ (*Rams.*). One. North-West (?) New Guinea.

JACANA, *Schäffer.*

jacana (*Linn.*). Twelve. 3 jr. Peru (Sarayacu). Ecuador (Guayaquil). Bolivia.

melanopygia (*Sclat.*).

nigra (*Gm.*). One. U.S. Colombia (Panama).

ASARCIA, *Sharpe.*

variabilis (*Linn.*). Nine. 1 ♀, 1 jr. Honduras. Guatemala (Lake Peten, April).

MICROPARRA, *Cab.*

capensis (*Smith*). One. South Africa (Damaraland, Wakquambi).

CHIONIDIDÆ.

CHIONIS, *Forst.*

alba (*Gm.*). Four & skel. Hermite Island. Antarctic Continent, Lat. 78° S.

The specimen from the Antarctic Continent was shot by Dr. Gunn of H.M.S. *Terror.* The specimen from Hermite Island, and another from an undetermined locality, were also collected during the Antarctic Expedition.

CHIONARCHUS, *Kidder & Coues.*

minor (*Hartl.*). Two. (Head only). Kerguelen Land (Royal Sound, February).

No. 1 was collected by Dr. [now Sir] J. D. Hooker, and noted by him at the time as a new species.

crozettensis, *Sharpe.*

DROMADIDÆ.

DROMAS, *Payk.*

T **ardeola,** *Payk.* Seven. 1 ♂ jr., 2 jr. Abyssinia (Bay of Amphila). South Africa (Natal). Madagascar.

No. 4, collected by Salt in 1812 in Amphila Bay, Abyssinia, is the Type of *Erodia amphilensis*, Salt, Trav. Abyss. Append. iv. pl. lxi. (1814).

CURSORIIDÆ.

CURSORIUS, *Lath.*

gallicus (*Gm.*). Thirteen. 3 ♂, 1 ♀, 4 jr. Canary Islands (Fuertaventura, Tarrajal, March; Punto Carbras, March; Fuineji, March: Lanzarote, Arecife, April). Tunis. Syria (Plain of Acre, March). Abyssinia (Tacazze River).

The specimen from Yorkshire (Tristr. Cat. Coll. Birds, p. 22) is not apparently now in the Collection.

somalensis, *Shelley.*

rufus, *Gould.* Three. 1 ♂. South Africa (Transvaal; Damaraland).

coromandelicus (*Gm.*). Ten. ♂, ♀. Northern India (Mhow, November). Southern India (Madras, May, November; Nellore).

temmincki, *Swains.* Six. 1 jr. South Africa (Transvaal; Natal).

ORTYXELUS, *Vieill.*

T **meiffreni** (*Vieill.*). Three. Senegal.

No. 2, from Senegal, is considered to be the Type of *Hemipodius nivosus*, Swains. (Phil. Mag. lx. p. 353 (1822); id. Zool. Illustr. iii. pl. clxiii. (1823)).

The systematic position of this rare bird, comparatively few specimens of which are known, is uncertain, many authorities ranking it with the Hemipodes.

PLUVIANUS, *Vieill.*

ægyptius (*Linn.*). Six. 1 ♀. Egypt, February, March. West Africa (Senegal). Central Africa (Lado, July).

RHINOPTILUS, *Strickl.*

bicinctus (*Temm.*). Six. 1 ♂, 1 jr. South Africa (Orange Free State, Kroonstadt, March).

bisignatus (*Hartl.*); hartingi, *Sharpe*; cinctus (*Heugl.*); seebohmi, *Sharpe.*

chalcopterus (*Temm.*). Two. South Africa.

albofasciatus, *Sharpe* (= *Cursorius chalcopterus*, Temm. Tristr. Cat. Coll. Birds, p. 22). Two. ♂ jr. South Africa (Ovampoland, Ondonga, January; Damaraland, Otjimbinque, March).

bitorquatus (*Blyth*). One. India.

STILTIA, *Bp.*

isabella (*Vieill.*). Four. Celebes (Tondano Lake, August). Moluccas (Amboina). Central Australia.

GLAREOLA, *Briss.*

pratincola (*Linn.*). Fourteen. 5 ♂, 3 ♀. England (Lancashire, North Meols, Spring 1805). Algerian Sahara (Ain Badjah, June). Tunis March. Egypt (Fayoum, June). Syria (Tartoos, May). Palestine (Lake Huleh, May). West Africa (Senegal). Central Africa (Lake Nyassa).

melanoptera, *Nordm.* Seven. 2 ♂, 1 jr. Russia (River Volga, May). Caucasus (Erzeroom). South Africa (Natal; Transvaal, Potchefstroom, October).

orientalis, *Leach.* Fifteen. 5 ♂ (3 jr.), ♀ jr., 2 jr. India (Nellore). Sumatra. Labuan, January. Banka, January. Java (Bantam Residency, Arendong, March). South-West Formosa. "At Sea, Lat. 19° N., Long. 120° E.," April.

GALACTOCHRYSEA, *Bp.*

ocularis (*Verr.*). Three. Madagascar.

marchei (*Oust.*); emini (*Shelley*); nuchalis (*G.R.Gr.*).

cinerea (*Fras.*). Three. West Africa (Ogowé River).

lactea (*Temm.*). Seven. Southern India (Godavery River, January; Nellore).

CHARADRIIDÆ.

ARENARIINÆ.

ARENARIA, *Briss.*

interpres (*Linn.*). Forty-seven. 5 ♂ (1 jr.), 10 ♀. Scandinavia. Orkneys, June. Scotland (Harris, June). England (Durham, Greatham, July; Yorkshire, Scarborough, August; Cheshire, Hilbre Island; Norfolk, Thornham, February). Kamtschatka. Kuriles, August, September. Japan (Yokohama). Canary Islands (Fuertaventura, Corrilejo, April). West Africa (Gambia, Bathurst, November). Madagascar (Mohambo, September). West Australia (Houtman's Abrolhos, South Island, January). North Australia (Raine Island, June, August). Lord Howe's Island. Central Pacific (Phœnix Island). Arctic America (Melville Island). Florida. Central America. Chili. Galapagos Islands (Bindloe Island).

melanocephala (*Vig.*). Three. ♂. Alaska (Hiniahmoo, October). British Columbia (Semiakmoo Bay). California (Farralone Islands, September).

HÆMATOPODINÆ.

HÆMATOPUS, *Linn.*

ostralegus, *Linn.* Twenty-nine. 3 ♂, 10 ♀, 1 jr., 3 pull. Orkneys, February. England (Durham, Teesmouth, September; Yorkshire, Scarborough, January, August, December).

osculans, *Swinh.* Three. ♂. Corea (Shoal Gulf, June). China (Ningpo, April).

longirostris, *Vieill.* Seven. ♂, 2 pull. North Australia (Port Essington, September; Cape Upstart, May). New Zealand (Canterbury, June).

We can hardly believe it possible that *H. finschi*, Martens (Ornith. Monatsber. v. p. 191, 1897), described from a single example, is really distinct from this well-known New Zealand species.

leucopus, *Garn.* Two. ♂. Straits of Magellan (Puerto del Morro, October).

palliatus, *Temm.* Two. North America. Guatemala (Chiapam, January).
galapagensis, *Ridgw.*; durnfordi, *Sharpe.*

frazari, *Brewst.* Two. Chili.

Two eggs collected by Bridges "on rocky islands near the coast of Chili, in November and December." These and other Chilian and Bolivian eggs out of the same collection will shortly be figured in the *Bulletin.*

unicolor, *Wagl.* Four. 2 ♂. West Australia (Houtman's Abrolhos, South Island, February). New Zealand (Port Cooper).

moquini, *Bp.* Four. 1 ♂. Canary Islands (Isla Graciosa, February). South Africa.

niger, *Pall.* One. ♂. Kamtschatka.

ater (*Less.*). Nine. ♂, 2 jr. Chili. Straits of Magellan, February.

The eggs of this species are in the Museum out of the Bridges Collection.

LOBIVANELLINÆ.

OREOPHILUS, *Jard. & Selb.*

ruficollis (*Wagl.*). Two. Chili.

ERYTHROGONYS, *Gould.*

cinctus, *Gould.* Ten. ♂. Australia (New South Wales, Upper Hunter River, Invermein, November; West Australia, Swan River).

HEMIPARRA, *Salvad.*

This generic name is adopted in substitution for *Defilippia*, Salvad., which is preoccupied according to Oberholser, Proc. Philad. Acad., 1899, *loc. cit.*

crassirostris (*Defil.*).

leucoptera, *Rchnw.* One. Nyassaland (Tschiromo, September).

SARCIOPHORUS, *Strickl.*

tectus (*Bodd.*). Four. Central Africa (White Nile).
latifrons, *Rchnw.*

LOBIPLUVIA, *Bp.*

malabarica (*Bodd.*). Five. 2 ♂, 2 ♀ (1 jr.). Northern India (Calcutta Mhow, July, October, December).

MICROSARCOPS, *Sharpe.*

cinerea (*Blyth*). Two. Bengal. Japan (Yokohama, October).

HOPLOXYPTERUS, *Bp.*

cayanus (*Lath.*). Three. 2 ♂. British Guiana, August. Brazil (Para; Rio Huallago).

The footnote to p. 136 (Cat. Birds Brit. Mus. Vol. xxiv.) is written under a misapprehension of the facts. Leyland, not *Leybold*, was a Natural History dealer in Liverpool, who also spent some time at Omoa, in Honduras, where he made considerable collections. On his return to England he submitted his collections to Mr. T. J. Moore, the Curator of the Derby Museum, who wrote a paper on them (Proc. Zool. Soc. 1859). A small portion only of them were selected for purchase. The localities, also, are by no means to be trusted, as specimens obtained by Leyland, in the ordinary course of his business, from other parts of South America, got mixed up with his Honduras Collection; for instance, we strongly suspect that the type of the extremely rare woodpecker, *Dendrobates sanguinolentus* (Sclat.), really came from Venezuela.

PTILOSCELIS, *Bp.*

resplendens (*Tschudi.*). Three. ♀. Peru (Tinta, May). Bolivia.

LOBIVANELLUS, *Strickl.*

lobatus (*Lath.*). Five. Eastern Australia (Moreton Bay; New South Wales). South Australia. Tasmania (Launceston, May).

We can find no record of the occurrence of this species in Tasmania. No. 5 was "shot near Launceston, and has the usual habit of plovers. It is, I am informed, abundant about Ross, Oatlands, &c., in the centre of the island, but not usually seen within a great distance of this. Iris, yellow; bill, yellow; legs, lower joint, black, upper joint, light brown. The bare skin about the eye also yellow." (R. Gunn, MS. Journal in Mus. Derb.).

miles (*Bodd.*). Two. South-East New Guinea (Port Moresby).

senegalus (*Linn.*). Five. 2 ♀. West Africa (Gambia, Bathurst, September).

lateralis (*Smith*). Four. ♂, 2 ♀. South Africa (Damaraland, June; Natal).

CHARADRIINÆ.

XIPHIDIOPTERUS, *Reichenb.*

albiceps (*Gould*). Two. West Africa (Niger River).

tricolor (*Horsf.*). Two. Timor.

We fail to see why *Charadrius tricolor*, Vieill. 1817, should invalidate *Vanellus tricolor*, Horsf. 1820, which antedates *V. cucullatus*, Temm. 1830, especially as the two species are now, and have always been, referred to two quite distinct genera. We have, therefore, adopted Horsfield's name for this species.

SARCOGRAMMUS, *Reichenb.*

indicus, *Bodd.* Eight. ♀. Nepaul. Northern India (Mhow, October; Darjeeling; Calcutta).

atrinuchalis (*Jerd.*). Four. ♀. Burmah (Moulmein, March). Malay Peninsula (Malacca; Singapore).

TYLIBYX, *Reichenb.*

melanocephalus (*Rüpp.*).

ZONIFER, *Sharpe.*

tricolor (*Vieill.*). Four. 1 ♀, 1 jr. West Australia. New South Wales. Tasmania (Campbelltown, November).

ANOMALOPHRYS, *Sharpe.*

superciliosus (*Rchnw.*).

HOPLOPTERUS, *Bp.*

spinosus (*Linn.*). Fourteen. 3 ♂, 3 ♀. Palestine (Magdala, February; Tiberias, March). Egypt. Central Africa (Khartoum, August; Sobat, June; Lado, July). West Africa (Gambia, Bathurst, September, October).

ventralis (*Wagl.*). One. ♂. North-West India (Etawah, October).

speciosus (*Wagl.*). Ten. ♂, 4 ♀ (1 jr.). South Africa (Algoa Bay; Damaraland, February; Transvaal, De Kaap, Barberton Flats, January).

BELONOPTERUS, *Reichenb.*

cayennensis (*Gm.*). Four. ♀. U.S. Colombia (Bogota). Uruquay (Montevideo).

chilensis (*Mol.*) (= *Vanellus cayennensis* (Gm.) spm. *c*, Tristr. Cat. Coll. Birds, p. 22). Five. 2 ♂. Chili (Concepcion, September).

We have recognised *Vanellus grisescens*, Prazak, Ornith. Monatsber. iv. p. 23 (1896), as a synonym of the above.

There are eggs of this species in the Museum from Bridges Collection.

VANELLUS, *Briss.*

vanellus (*Linn.*). Fifteen. 2 ♂, 5 ♀. England (Durham, Greatham, April, November; Hants, Mottisfont, May). Algeria (Maison Carré, October; N'gousa (Algerian Sahara), December). Palestine (Engedi, January). Gilgit? (Littledale Coll.). Japan (Kobé, February; Yokohama, January).

selysi, *Van Beneden.* (Fossil).

ZAPTERUS, *Oberholser.*

This generic name has been substituted for *Eulyas*, Sharpe, which is preoccupied according to Oberholser, Proc. Philad. Acad., 1899, *loc. cit.*

leucurus (*Licht.*). Three. 1 ♀. Egypt (Damietta, December; "The Nile"). India.

CHÆTUSIA, *Bp.*

gregaria (*Pall.*). Four. 1 ♂, 1 jr. South Russia (Volga R.). Siberia (Altai Mts).

STEPHANIBYX, *Reichenb.*

coronatus (*Bodd.*). Ten. 3 ♂, 4 ♀. South Africa (Damaraland, Otjimbinque, September, December; Transvaal, Potchefstroom, June; Natal). [West Africa].

inornatus (*Swains.*). One. West Africa.

Collected by Whitfield, probably on the Gambia.

melanopterus (*Cretzsch.*). Two. Abyssinia.

SQUATAROLA, *Leach.*

helvetica, *Linn.* Nineteen. 6 ♂, 2 ♀. England (Lancashire, Flookborough, November; Sussex, Pagham Harbour, September; Cornwall, January). South Africa (Port Natal). West Africa (Gambia, Bathurst, October). Greece (Navarino, February). Borneo (Labuan, May, December). Japan, January. Arctic America (Melville Peninsula, Iglvolik, June). Labrador. Massachusetts (Yarmouth, August). Mexico. Chili.

CHARADRIUS, *Linn.*

pluvialis, *Linn.* Sixteen. 4 ♂, 4 ♀. Orkneys (Hoy). England (Lancashire, Preston; Yorkshire, Scarborough, December). Siberia (Lower Petchora, Ust-zylma, May; Yen-e-say Valley, Lat. 77½°, July). Palestine (Acre, December).

dominicus, *P. L. S. Müll.* Fifty-three. 7 ♂, 3 ♀. Siberia (Yen-e-say Valley, Lat. 66½°, June; Lat. 71½°, July). South-East Mongolia. Central India (Raipur, October, November). Southern India (Nellore). Malay Peninsula (Malacca, Singapore). China (Foochow, October). South-West Formosa. Japan (Yokohama, October). Phillippine Islands. Java. Talaut Islands (Lirung, March). West Australia (York, November). Northern Australia (Port Essington, November; Cape York, Raine Island, June). Eastern Australia (Moreton Bay). Norfolk Island. Lord Howe's Island. New Caledonia (Noumea). New Hebrides (Aneityum; Aniwa). New Britain (Blanche Bay, July). Samoa. Fiji Islands (Rewa). Phœnix Islands (Sydney Island). Fanning Island. Marquesas, March. Alaska (Point Barrow, June). Illinois (Grand Crossing, April). South Mexico.

sheppardianus, *Cope.* (Fossil).

APHRIZA, *Aud.*

T **virgata** (*Gm.*). Seven. Arctic America (Hudson's Bay). Peru. Bolivia. Chili.

No. 7, from Peru, collected by Dr. Tschudi, is probably one of the Types of *Charadrius winterfeldti*, Tschudi, Arch. f. Naturg. p. 388 (1843).

OCHTHODROMUS, *Reichenb.*

obscurus (*Gm.*). Nine. ♀. New Zealand (Nelson, June; Port Cooper).

bicinctus, *Jard. & Selb.* Nine. 1 ♂. Australia. New Zealand (Canterbury, July).

wilsoni (*Ord.*). Eleven. United States (North Carolina, Fort Macon, June). South Mexico. Jamaica. Venezuela (Cumana).

geoffroyi, *Wagl.* (= *Ægialitis mongola* (Pall.) spm. *c*, and *Eudromias asiaticus* (Pall.) spm. *a*, Tristr. Cat. Coll. Birds, pp. 19 and 20). Fourteen. 3 ♂, 4 ♀. Palestine (Acre, December; Beersheba, February; River Kishon, March). Asia Minor, May. Turkestan (Syr-darja, June). Borneo (Labuan, September; Silam). China (Shanghai, May). Morty Island, September. Philippine Islands. Madagascar.

mongolus (*Pall.*). Twelve. ♂, 2 ♀. Ladakh (Kurakash, August). India. South Andaman Islands, February. China (Shanghai). Philippine Islands. Japan (Yokohama, April). Kurile Islands, May, July. New Zealand (Port Cooper).

We have included *O. pyrrhothorax* (Gould) as a synonym of this species, nor do we believe that *Ægialitis pamirensis*, Richm. (Proc. U.S. Nat. Mus. p. 590, 1896), described from a single example, has any claim to distinctness.

asiaticus (*Pall.*). Five. 3 ♂, ♀. Siberia (Irtisch River, May). South Africa (Damaraland; Transvaal, Potchefstroom, January, September).

veredus (*Gould*). Two. ♂. Malay Peninsula (Malacca). China (Shanghai, March).

EUDROMIAS, *Brehm.*

morinellus (*Linn.*). Sixteen. 4 ♂, 4 ♀. England (Lincolnshire, Epworth, April, May). Russia. Siberia (Yen-e-say Valley, Lat. 66½°, June). Algerian Sahara (Bou Guizoon, November). Palestine (Sudeid, February; Hhora, February).

ZONIBYX, *Reichenb.*

modesta (*Licht.*). Six. 2 ♂, ♀. Bolivia. Chili. Straits of Magellan (Gregory Bay, January; Punto Bueno, November). Falkland Islands, May.

PODASOCYS, *Coues.*

montanus (*Towns.*). Three. 2 ♂. United States (Montana, Frenchmans River, July; Texas; San Antonio, December; Brownsville).

OXYECHUS, *Reichenb.*

vociferus (*Linn.*). Seventeen. 1 ♂, 1 ♀. Nova Scotia. North-West Territory (Neighbourhood of Jasper's House, April). Mexico (Bolanos). Vera Paz (Coban, November). Jamaica. San Domingo (Almerçen).

tricollaris (*Vieill.*). Eight. 1 ♂. South Africa (Transvaal, Potchefstroom, March; Natal).

bifrontatus (*Cab.*). Four. Madagascar (North Betsileo, Sirubé).
forbesi (*Shelley*).

ÆGIALEUS, *Reichenb.*

semipalmatus (*Bp.*). Nine. 1 ♂, 1 ♀, 1 jr. Alaska (Nawer Yukon, Nulato, May). Arctic America (Beaver Harbour). New Brunswick (St.

Stephens). Bermuda. Barbadoes. San Domingo. Chili (Coquimbo, June). [India].

ÆGIALITIS, *Boie.*

hiaticola, *Linn.* Thirty-four. 4 ♂, 4 ♀. England (Lancashire, Southport; Cheshire, Hoylake, September; Suffolk, Ipswich, September; Sussex, Pagham, September; Devon, Coombe Cellars). Palestine (Gennesareth, May; Kishon, December). Syria (Tripoli, May; Karkemish, June). South Africa (Damaraland; Natal).

placida (*G.R.Gr.*). Three. ♂. Japan (Hakodati, April; Yokohama).

dubia (*Scop.*). Nineteen. ♂, 4 ♀. England (Sussex). Algeria (Algiers, May). West Africa (Gambia, Bathurst, April). Egypt. Sokotra (Hadibu, December), *ex* Forbes and Grant expedition. Nepaul. Northern India (Futteghur, October; Muddapur, December). Southern India (Mysore, Muddur, March; Nellore). China (Amoy). Philippine Islands.

peroni (*Bp.*). Four. ♀. Borneo (Pulo Tiga Island, April; Santubong, December). Philippine Islands.

alexandrina, *Linn.* (= *Æ. nivosa* (Cass.). Tristr. Cat. Coll. Birds, p. 20). Twenty-seven. 4 ♂, 6 ♀. France (Loire Inferieure, May). Algeria (Algiers, February; Tuggurt (Algerian Sahara), December). Tunis. Greece (Pylos, February). Palestine (Tyre, December; Sidon, March; Kishon, March). Turkestan (Lob-nor; Khotan, Sanipula). India. Nepaul. Borneo (Trusan). Java. China (Amoy).

marginata (*Vieill.*). Three. South Africa.

pallida (*Strickl.*). (= *Æ. marginata* (V.). spm. *a*, Tristr. Cat. Coll. Birds, p. 19). Two. ♂. Natal. Madagascar (Mohambo, September).

Differing from the specimens of *Æ. marginata* in having a shorter wing (3·9-4·0 inches.), and in having less white on the secondaries. The species has apparently not been recorded from so far south as Natal.

venusta (*Fisch. & Rchnw.*).

ruficapilla (*Temm.*). Eleven. 3 ♂, 4 ♀. Northern Australia (Cape York, September). South Australia (Adelaide, January). Tasmania (Georgetown, September).

Ronald Gunn, the collector, has the following note about the Tasmanian specimens:—"I shot these birds on the beach at Georgetown. They run along the sand, almost within the waves, picking up mollusca, &c., deposited by the sea, uttering a sharp, squeaking cry. When disturbed or pressed too close, they make short flights over the sea to another part of the beach. Iris, brown; legs and feet, black."

collaris (*Vieill.*). Eight. 2 ♂, ♀. Mexico. Venezuela (Cumana). Peru (Upper Ucayale, Cachiboya, September).

nivosa, *Cass.* (= *Æ. collaris* (Vieill.), spm. *d*, Tristr. Cat. Coll. Birds, p. 19, 1892). Four. California. San Francisco. Chili.

meloda, *Ord.* Ten. North America.

occidentalis, *Cab.*

T falklandica, *Lath.* Six. Chili (Valparaiso). Falkland Islands. Victoria Land.

Nos. 3 and 4, from Chili, collected by Bridges, are the Types of *Hiaticula bifasciata*, Fraser, P.Z.S. 1843, p. 118. No. 6 is stated to have been collected in Victoria Land during the Antarctic Expedition of H.M.SS. *Erebus* and *Terror*. The locality, if correct (and there seems no doubt on this point), is interesting, as, according to Dr. Sclater (Ibis, 1898, p. 430), no species of *Limicolæ*, except the aberrant form *Chionis*, is known to occur on the Antarctic Continent.

pecuaria (*Temm.*). Ten. 3 ♀, 1 jr., 1 pull. Egypt (Ghow, March; "The Nile"). West Africa (Fantee). South Africa (Transvaal, Potchefstroom, September; Cape Colony, Knysna, December). Madagascar (Chuti).

sanctæ-helenæ, *Hart.* Five. St. Helena (Longwood).

thoracica, *Richm.*

melanops (*Vieill.*). Eight. ♂. Northern Australia (Port Essington, Crinan Camp, February). Eastern Australia (Brisbane). South Australia.

cucullatus (*Vieill.*). Five. 2 ♂. Australia. Flinder's Island. Bass' Straits, January. Tasmania.

PLUVIANELLUS, *Jacq. & Puchr.*

sociabilis, *Jacq. & Puchr.*

THINORNIS, *G.R.Gr.*

novæ-zealandiæ (*Gm.*). Five. 4 ♀. Chatham Islands (South-East Island, May).

rossi, *G.R.Gr.*

ANARHYNCHUS, *Q. & G.*

frontalis, *Q. & G.* One. New Zealand (Port Lyttleton).

This specimen is figured by Harting, Ibis, 1869, p. 304, pl. viii.

PELTOHYATINÆ.

PELTOHYAS, *Sharpe.*

australis (*Gould*). Nine. ♂, ♀ jr., 2 jr. South Australia (Gawler Plains).

HIMANTOPODINÆ.

HIMANTOPUS, *Briss.*

himantopus (*Linn.*). Ten. 3 ♂, 4 ♀ (1 jr.). Algerian Sahara (Djendeli, June). West Africa (Gambia, Bathurst, September). Persian Gulf (Fao, February). Northern India (Mhow, October; Mirzapur, Saharunpur, January; "Gidhun," November). Madagascar.

melanurus, *Vieill.* Four. Chili. Peru?

leucocephalus, *Gould.* Nine. 2 ♂ (1 jr.), ♀ jr., 1 jr. West Australia (Perth, "Mongers Lake," July). Northern Australia (Port Essington, November, December; Cape York). New South Wales. New Zealand (Otago, Palmerston, December).

The last-mentioned specimen from New Zealand seems to be quite typical *H. leucocephalus*, agreeing perfectly with Australian specimens.

leucocephalus, *subsp.* **picatus**, *Ellman.* Two. 1 ♂. New Zealand (Port Cooper).

mexicanus (*P. L. S. Müll.*). Six. North America (Rio Grande, Lat. 32°). Venezuela (Cumana). Brazil (Para).

knudseni, *Stejn.* One. ♂. Sandwich Islands (Oahu, January).

melas, *Hombr. & Jacq.* Two. New Zealand.

CLADORHYNCHUS, *G.R.Gr.*

leucocephalus (*Vieill.*). Eight. ♂. West Australia (Lake near Perth). South Australia. Tasmania.

RECURVIROSTRA, *Linn.*

avocetta, *Linn.* Eight. ♂, 2 ♀, pull. Denmark. Greece (Navarino, February). Egypt (Port Said, February). Southern India (Godavery River, December).

americana, *Gm.* Six. 2 ♂. United States (Utah, Devil's Gate, Sweet Water, August; Florida). South Mexico. Guatemala (Huamuchal, February).

novæ-hollandiæ, *Vieill.* Five. ♂. West Australia (Lake near Perth). South Australia (New South Wales).

andina, *Phil. & Landb.*

IBIDORHYNCHINÆ.

IBIDORHYNCHUS, *Vig.*

struthersi, *Vig.* Three. ♂. Sikkim (Yeumtong (12,000 ft.), September).

TOTANINÆ.

NUMENIUS, *Briss.*

arquatus (*Linn.*). Twenty-four. ♂, ♀, 2 pull. Orkneys, January. Scotland (Caithness, Wick, June). England (Durham, Greatham, January; Lancashire, Poulton, December). Egypt (Damietta, May). South Africa (Transvaal, Potchefstroom, October; Port Natal, Cape Colony). China (Amoy, February). Japan (Yokohama, October).

tenuirostris, *Vieill.* Three. ♂. Italy. Algeria (Constantine, February).

cyanopus, *Vieill.* Two. Japan (Yokohama, October). New South Wales.

longirostris, *Wils.* Six. North America. North-West Territory (Neighbourhood of Jasper's House, April).

phæopus (*Linn.*). Sixteen. 3 ♂, 2 ♀. England (Yorkshire, Scarborough, August; Sussex, Pagham). West Africa (Gambia, Bathurst, April, September). South Africa (Natal). Rodriguez. Madagascar (Mohambo, September).

phæopus, *subsp.* **variegatus** (*Scop.*). Five. ♂, 2 ♀. Borneo (Labuan, September). Halmaheira, September. Northern Australia (Port Essington, Table Head River, January; Oomago Island, March). New South Wales.

hudsonicus, *Lath.* Seven. Florida. British Honduras (Belize). Brazil. Chili.

tahitiensis, *Lath.* Three. Palmerston Island. Fanning Island. Marquesas, March.

borealis (*Forst.*). One. ♂. Nova Scotia (Pictou).

antiquus, *Milne-Ed.* (Fossil).

gypsorum, *Gerv.* (Fossil).

pliocenus, *Portis.* (Fossil).

MESOSCOLOPAX, *Sharpe.*

minutus (*Gould*). Four. 2 ♀. Siberia (Lake Baikal, August). China (Shanghai, May). Amboina. North Australia (Port Essington, November).

LIMOSA, *Briss.*

lapponica (*Linn.*). Thirteen. 2 ♂, 2 ♀. England (Durham, Greatham, September; Lancashire, Burscough, November; Norfolk, May; Yorkshire, Scarborough, January, November).

lapponica, *subsp.* **novæ-zealandiæ,** *G.R.Gr.* Fourteen. 5 ♂. Japan (Yokohama, April; Tokio). China (Shanghai, April). New Hebrides (Aneityum). New Zealand (Nelson, June).

limosa (*Linn.*). Nineteen. 4 ♂, 5 ♀. Algeria (Constantine, Lake Tetzara). Northern India (Depalpur, January). Borneo (Baram). China (Shanghai, May). Philippine Islands (South Luzon). Japan (Yokohama, September). Northern Australia (Port Essington, Point Smith, November, December).

hudsonica (*Lath.*). Six. North America. Mexico. Bolivia? Chili (Valparaiso).

fedoa (*Linn.*). Five. ♀. Arctic America (Hudson's Bay). United States (New York, May). Bermudas (Ireland Island). British Honduras (Belize).

MACRORHAMPHUS, *Leach.*

griseus (*Gm.*). Fourteen. ♂, 2 ♀ (1 jr.). Britain? New Brunswick. United States (New York; Texas, Brownsville). South Mexico.

taczanowskii (*Verr.*).

MICROPALAMA, *Baird.*

himantopus (*Bp.*). Two. ♂. United States (New York). Peru (Yquitos, September).

SYMPHEMIA, *Rafin.*

semipalmata (*Gm.*). Eight. North America. Bolivia.

TOTANUS, *Bechst.*

fuscus (*Linn.*). Seven. ♂, ♀. England (Lancashire, Warrington). Northern India (Depalpur, January), Japan (Yokohama, April, September). Australia.

calidris (*Linn.*). Seventeen. 4 ♂, 4 ♀. England (Lancashire, Southport, October). West Africa (Gambia, Bathurst, September). Greece (Pylos, February). Palestine (Sabkha Safieh, February). Philippine Islands (Mindanao).

stagnatilis, *Bechst.* Seven. 3 ♀. Dalmatia. Egypt (Memphis, March). South Africa. Northern India (Kandahar; Etawah, November; Calcutta). Philippine Islands (South Luzon).

melanoleucus (*Gm.*). Fifteen. 3 ♂. North-West Territory (Neighbourhood of Jasper's House, June). United States (Illinois; Texas, April). Chili.

flavipes (*Gm.*). Nine. ♂. New Brunswick (St. John's). United States (Texas, Brownsville). Venezuela (Cumana). Chili.

lartetianus, *Milne-Ed.* (Fossil).

scarabellii, *Portis.* (Fossil).

majori, *Lydek.* (Fossil).

HELODROMAS, *Kaup.*

ochropus (*Linn.*). Fourteen. 1 ♂, 4 ♀. England (Westmoreland, Windermere, April). Algeria (Blidah, February; Temaçin). Algerian Sahara, December. Palestine (Gennesareth, March; Rabboth Ammon, March). Nepaul. Northern India (Mhow, October). Japan (Yokohama).

solitarius (*Wils.*). Five. New Brunswick (St. Croix River). Jamaica. British Honduras.

cinnamomeus, *Brewster.*

HETERACTITIS, *Stejn.*

brevipes (*Vieill.*). Five. 2 ♀. Japan (Nagasaki; Yokohama, May; Hakodati, May).

incanus (*Gm.*). Ten. ♂, ♀, jr., stern. Torres Straits (First Cousin Island, August). Santa Cruz Island. Samoa. Phœnix Islands (Gardner Island). Society Islands (Huaheine; Tahiti, April). Marquesas, March. Alaska (St. Michael's).

A male specimen from Torres Straits, collected by Macgillivray in 1844, appears undoubtedly to belong to this species, and not to the preceding. The specimen from Tahiti was collected in 1837 by J. K. Townshend, and presented to Lord Derby by Audubon.

TRINGOIDES, *Bp.*

hypoleucus (*Linn.*). Twenty-seven. 7 ♂, 10 ♀. England (Norfolk, May; Hants, Mottisfont, August). Siberia (Yen-e-say Valley, Lat. 66½°, June).

Algeria (Algiers, May). Canary Islands (Teneriffe, La Laguna, April). West Africa (Gambia, Bathurst, August, September). Egypt, March. Palestine (Sidon, December; Gennesareth, March). Malay Peninsula (Pahang, January). Sumatra (Palembang Residency; Lake Ranau, Tandjoeng Djati, February). Philippine Islands. East Coast Formosa, May. Solomon Islands (Bugotu). Duke of York Islands (Moroda Island, July).

macularius (*Linn.*). Seventeen. 2 ♂. Bermuda. United States (New Jersey). Mexico (Bolanos). British Honduras (Belize). Jamaica. Surinam. Peru.

TEREKIA, *Bp.*

cinerea (*Güldenst.*). Fourteen. 5 ♂, 3 ♀. Siberia (Yen-e-say Valley, Lat. 66½°, June). India. Philippine Islands. Japan (Yokohama, May, October). South Africa (Natal).

PSEUDOGLOTTIS, *Stejn.*

guttifer (*Nordm.*).

GLOTTIS, *Koch.*

nebularius (*Gunner*). Twenty-one. 2 ♂, 7 ♀. England (Yorkshire, September; Lancashire, Knowsley, September). Greece (Pylos, February). Egypt (Samanhub, November). West Africa (Gambia, Bathurst, September). South Africa (Port Natal). Southern India (Nellore). Assam. Borneo (Baram, May). South-West Corea, September. Japan (Yokohama, May). Northern Australia (Port Essington, December). New South Wales.

RHYACOPHILUS, *Kaup.*

glareola (*Gm.*). Thirty. 8 ♂, 3 ♀, pull. Denmark. Northern Russia (Lower Petchora, Alexierka, June). Siberia (Yen-e-say Valley, Lat. 66½°, June). Algeria (Algiers). West Africa (Gambia, Bathurst, November). South Africa (Transvaal, Potchefstroom, December). Northern India (Mhow, May, October; Depalpur, January; Saharunpur, February; Calcutta, Godavery River, December). Ceylon. Malay Peninsula (Malacca). Java. Borneo (Labuan, May). Philippine Islands.

PAVONCELLA, *Leach.*

pugnax (*Linn.*). Thirty-one. 13 ♂, 4 ♀. England (Lancashire, Knowsley, September). Holland, April. Denmark. Russia (Moscow, September). Algerian Sahara (Tuggurt, December). Tunis. Egypt, March. West Africa (Senegal). Central Africa (Nyassaland). South Africa (Natal). Southern India (Nellore).

BARTRAMIA, *Less.*

longicauda (*Bechst.*). Five. United States (Texas). Guatemala (Duenas).

EREUNETES, *Ill.*

pusillus (*Linn.*). Nine. ♂, ♀. Alaska (Point Barrow, July). British Columbia (New Westminster, August). United States (California, Fort Tejon; Texas, Brownsville). Brazil. Ecuador.

GLORIUS, *Milne-Ed.* (Fossil).

paludicola, *Milne-Ed.*

RUPELORNIS, *Van. Bened.* (Fossil).

definita, *Van. Bened.*

SCOLOPACINÆ.

TRINGITES, *Cab.*

subruficollis (*Vieill.*). Three. 3 ♂. Alaska (Point Barrow, June). South Mexico. Peru (Upper Ucayale River).

ÆCHMORHYNCHUS, *Coues.*

cancellatus (*Gm.*).

PROSOBONIA, *Bp.*

leucoptera (*Gm.*).

CALIDRIS, *Cuv.*

arenaria (*Linn.*). Twenty-eight. 3 ♂, 6 ♀. Iceland (Bæjaska, May). Orkneys, June. England (Lancashire, Southport, August, September; Norfolk, Hunstanton, June). West Africa (Gambia, Bathurst, October). South Africa (Natal). Egypt (Jebel, May). Japan (Yokohama, May, March). Eastern Australia (Sandy Cape, April). United States (Georgia). Jamaica. Chili.

On the subject of the Australian specimens which were collected by Macgillivray during the voyage of H.M.S. *Rattlesnake, cf.* Newton, Rec. Austr. Mus. ii., p. 22, 1892; id. Add. Ibis, 1892, pp. 1, 2.

EURHYNORHYNCHUS, *Nilss.*

pygmæus (*Linn.*). Three. Saugor Island, January. China (Amoy, October). Japan.

LIMONITES, *Kaup.*

minuta (*Leisl.*). Fourteen. ♂, 4 ♀. Nova Zembla (Goon Cape, July). England (Norfolk, Cley, September). Switzerland (Geneva). Russia (St. Petersburg, September). Algerian Sahara (Temaçin, December). Egypt (Ghow, April; Abou-fadah, May). Palestine (Safieh, January). Northern India (Etawah, May; Calcutta). South Africa (Natal).

ruficollis (*Pall.*). Fifteen. ♂, 2 ♀. Japan (Yokohama, May; Lake Giotoku, August). China (Amoy, May). South-West Formosa. Morty Island, May. Northern Australia (Cape York, February). South Australia (Adelaide, January). West Australia (Houtman's Abrolhos; Middle Island, January).

minutilla (*Vieill.*). Nine. 2 ♂, ♀. British Columbia (Sumas Lake, April). California (Fort Tejou). Bermuda. Jamaica (Spanish Town, October).

damacensis (*Horsf.*). Five. Japan (Hakodati, September). South-West Formosa. Philippine Islands.

temmincki (*Leisl.*). Seven. 3 ♂, ♀. East Siberia (Yen-e-say Valley, June). Northern India (Etawah, November).

HETEROPYGIA, *Coues.*

maculata (*Vieill.*). Ten. 2 ♂. Alaska (Point Barrow, July). Texas (Brownsville). South Mexico. Peru. Argentine (Buenos Ayres, November).

acuminata (*Vieill.*). Thirteen. 3 ♂. Japan (Hakodati; Hitachi-no-kumi; Yokohama). China (Shanghai, April). Formosa. Takow. Northern Australia (Port Essington, October). Eastern Australia (Port Philip, January).

bairdi (*Coues*). Five. 1 ♂. Colorado (North Park). Chili (Santiago; Concepcion, September).

fuscicollis (*Vieill.*). One. Bermuda.

H. cooperi (Baird) is considered here to be a synonym of *H. fuscicollis*.

ARQUATELLA, *Baird.*

maritima (*Gm.*). Twenty-five. 4 ♂, ♀. Orkneys. England (Durham, Greatham, May; Northumberland, Bamborough, April; Yorkshire, Scarborough, January, November, December; Devonshire, Plymouth, January, February).

maritima, *subsp.* **couesi,** *Ridgw.* One. ♀. Alaska (Port Etolin, April).

maritima, *subsp.* **ptilocnemis** (*Coues*). Three. 2 ♂ (1 jr.), ♀. Pribyloff Islands (St. Paul's, July, August).

ANCYLOCHILUS, *Kaup.*

subarquatus (*Güldenst.*). Twenty. 2 ♂, ♀. Iceland. Denmark. England (Dorset, Weymouth, October). Algeria, October. West Africa (Gambia, Bathurst, October). South Africa (Walvisch Bay). Philippine Islands (South Luzon). Tasmania.

TRINGA, *Linn.*

canutus (*Gm.*). Thirteen. 4 ♂. United States. Iceland. England (Yorkshire, Scarborough, August). China (Shanghai, April).

crassirostris, *Temm. & Schleg.* Three. ♂, ♀. Japan (Yokohama, October). China (Shanghai, April, May).

gracilis, *Milne-Ed.* (Fossil).

PELIDNA, *Cuv.*

alpina (*Linn.*). Thirty-two. 3 ♂, 6 ♀, pull. Orkneys. England (Durham, Seaton Carew, September; Yorkshire, Scarborough, January, November; Lancashire, Southport, September; Sussex, Lancing, September). Ireland, August. Denmark. Holland, August. Russia (Archangel, May). Algeria, October. Greece (Navarino, February). Palestine (Tyre, December).

americana (*Cass.*). Eight. 2 ♂, ♀. Canada (Ontario, May). Alaska (Point Barrow, August). Sitka, May. China. Formosa, February. Japan (Yokohama, May).

LIMICOLA, *Koch.*

platyrhyncha (*Temm.*). Five. ♂. India. Philippine Islands. Japan (Giotoku, October).

GALLINAGO, *Leach.*

stenura (*Bp.*). Sixteen. ♂, 2 ♀. East Siberia (Yen-e-say Valley, June). Nepaul. India. Ceylon. Malay Peninsula (Malacca). Java (Buitenzorg, January). China (Amoy, December).

megala, *Swinh.* Five. Malay Peninsula (Singapore). Borneo (Labuan, October). Philippine Islands (South Luzon). Formosa. Japan (Hakodati).

major (*Gm.*). Ten. 4 ♂, ♀, pull. Scandinavia. Denmark, January. England (Lancashire, Winwick). East Siberia (Yen-e-say Valley, June). South Africa (Transvaal, Potchefstroom, January; Natal).

nigripennis, *Bp.* Thirteen. 2 ♂, 5 ♀. Central Africa. South Africa (Transvaal, Potchefstroom, March, July, November, December; Zululand, Isepengo Flats, October; Natal; Cape of Good Hope).

gallinago (*Linn.*). Twenty-three. 3 ♂ (1 jr.), ♀, 3 pull. Orkneys, June England (Durham, Greatham, July, September; Lancashire, Burscough, November; Middlesex, Harrow, December). Russia (Moscow, September). Palestine (El Bussah, December). Sokotra (Homhil, January). China (Takow, March; Amoy, January).

No. 18, from an unspecified locality, is an albino.

delicata, *Ord.* Eight. 1 ♀. North America (Kentucky, Lexington). Mexico. Cuba, January. Jamaica. Vera Paz (San Gerònimo). Tobago.

frenata (*Ill.*) Two. Brazil (Para).

frenata, *subsp.* **andina** (*Tacz.*). One. Peru.

nobilis, *Sclat.* One. New Granada.

macrodactyla, *Bp.* Six. 1 ♂. Madagascar (Mohambo, August).

paraguayæ (*Vieill.*). Five. 1 ♂. Chili. Falkland Islands.

australis (*Lath.*). Ten. 3 ♂, 2 ♀. Japan (Yokohama, September, November). Northern Australia (Port Essington, January). Queensland (Moreton Bay). Tasmania (Launceston, September).

G. dubia, Deichler (J.f.O., 1897, p. 151), is most probably identical with this species.

solitaria, *Hodgs.* Five. 1 ♀. Nepaul. China (Shanghai, January). Japan (South-West Nippon, Isuruga, March).

nemoricola, *Hodgs.* Four. Nepaul. India.

gigantea (*Temm.*). Two. Brazil (Rio de Janeiro).

No. 1, without definite locality, was collected by Natterer.

undulata (*Bodd.*). One. Guiana.

stricklandi, *G.R.Gr.* Three. Straits of Magellan (Puerto Bueno, February).

T jamesoni (*Bp.*). Two. Ecuador (Quito).

Types of the species, purchased at the sale of the Jardine Collection by Canon Tristram, who obtained three specimens, of which one found its way to the Seebohm Collection, and is now in the British Museum.

aucklandica (*G.R.Gr.*). Two. 1 pull. Auckland Islands (Mount Teviot, December).

T aucklandica, *subsp.* **huegeli,** *Tristr.* One. Snares Island, November.

Type of the subspecies; figured as *G. pusilla*, Bull. B. New Zeal. (2nd Ed.) II., p. 33, pl. xxviii. fig. 1 (1888).

aucklandica, *subsp.* **pusilla,** *Bull.* Six. Chatham Islands (South-East Island, May).

chathamica, *Forbes.* (Extinct.)

imperialis, *Sclat. & Salv.*

LIMNOCRYPTES, *Kaup.*

gallinula (*Linn.*). Fifteen. ♂, 3 ♀. England (Lancashire, Burscough, November; Middlesex, Harrow, November; Essex, January; Hants, Mottisfont, January). Russia (Moscow, September). Morocco (Tangiers, March). Palestine (Esdraelon, February). Japan (Yokohama).

NEOSCOLOPAX, *Salvad.*

rochusseni (*Schleg.*).

SCOLOPAX, *Linn.*

rusticula, *Linn.* Fourteen. 2 ♂, 4 ♀, jr. Orkneys. England (Lancashire, Bickerstaffe; Liverpool, October; Knowsley; Cheshire, Arley Hall; Sussex, Horsham; Hants, Mottisfont, January). Canary Islands (Teneriffe, St. Ursula, May). Nepaul. Japan (Yokohama; Chiusenze, April).

The specimen from Liverpool was captured in Fraser Street in the heart of the town, probably on migration.

saturata, *Horsf.* One. Java.

Cf. Blyth, Ibis., 1865, p. 36 (Note).

PHILOHELA, *G.R.Gr.*

minor (*Gm.*). Three. North America.

PHEGORNIS, *G.R.Gr.*

T **mitchelli** (*Fraser*). One. Chili.

This specimen, collected by Bridges, is most probably the Type of the species.

ROSTRATULA, *Vieill.*

capensis (*Linn.*). Twenty-one. 8 ♂ (1 jr.), 10 ♀ (1 jr.), jr. West Africa. South Africa (Damaraland, Ovambande; Transvaal, Potchefstroom, March). Madagascar. Northern India (Mirzapur). Java. Philippine Islands (Luzon, Cataguan). Japan (Yokohama, January).

australis (*Gould*). Four. ♂, 3 ♀ (1 jr.). Northern Australia (Port Essington, Crow Camp, February). South Australia.

semicollaris (*Vieill.*). Eight. 1 ♀. Chili, July. Straits of Magellan.

The eggs of this species are in the Museum from Bridges Collection.

PHALAROPODINÆ.

CRYMOPHILUS, *Vieill.*

fulicarius (*Linn.*). Sixteen. 4 ♂. Iceland. Alaska (St. George's Island, July). Kamtschatka. England (Lancashire, Crosby, December; Bootle, November; Hants, Mottisfont, November). Off Lisbon, November.

PHALAROPUS, *Briss.*

hyperboreus (*Linn.*). Fifteen. 4 ♂, 4 ♀. Orkneys (Stennes, June). Shetlands, July. North Uist, June. East Siberia (Yen-e-say Valley, June). Kurile Islands. Alaska (Bare Creek, August). Japan (Yokohama). Guatemala (Duenas).

STEGANOPUS, *Vieill.*

tricolor (*Vieill.*). Nine. 1 jr. Arctic America. United States (Arizona, Cienega, August; Wyoming, Lake Smel, August). Mexico. Chili (Valparaiso; Lake Quintero).

(To be concluded.)

PRESENTED
23 OCT. 1899
BRITISH MUSEUM NATURAL HISTORY

Desiderata.

Specimens of the following species of Birds are desiderata in this Museum. Museums or individuals having examples to dispose of, by exchange or otherwise, are requested to communicate with the Director.

Ibis abbotti, *Ridgw.*; Graptocephalus davisoni (*Hume*); Thaumatibis gigantea (*Oust.*); Plegadis ridgwayi (*Allen*); P. humeralis (*De Vis*); Ardea wurdemanni, *Baird*; A. wardi, *Ridgw.*; A. occidentalis, *Aud.*; A. insignis, *Hume*; A. humboldti, *Milne Edw. & Grand.*; Notophoyx aruensis (*G.R.Gr.*); Nycticorax crassirostris, *Vig.*; Cancroma zeledoni, *Ridgw.*; Butorides brevipes (*Hempr. & Ehrenb.*); B. robinsoni, *Ridgw.*; B. spodiogaster, *Sharpe*; B. anthonyi (*Mearns*); Tigrisoma, all species except T. lineata, *Bodd.*; Ardetta erythromelas (*Vieill.*); A. pusilla (*Vieill.*); Dupetor nesophilus (*Sharpe*); Erythrophoyx woodfordi (*Grant*); E. prætermissa (*Sharpe*); Botaurus pinnatus (*Licht.*); Ciconia boyciana, *Swinh.*; Pseudotantalus cinereus (*Raffles*); Phalacrocorax perspicillatus, *Pall.*; P. bicristatus, *Pall.*; P. desmaresti, *Payr.*; P. auritus (*Less.*); P. cincinnatus, *Brandt.*; P. neglectus (*Wahl.*); P. fuscicollis, *Steph.*; P. carunculatus (*Gm.*); P. stewarti, *Grant*; P. verrucosus (*Cab.*); P. gouldi (*Salvad.*); Phæthon indicus, *Hume*; Colymbus pacificus, *Lawr.*; C. adamsi, *G.R.Gr.*; Podicipes albescens, *Mand.*; P. pelzelni, *Hartl.*; P. juninensis, *Berlepsch & Stolzm.*; P. taczanowskii, *Berlepsch & Stolzm.*; Pygoscelis papua (*Forst.*); P. antarctica (*Forst.*); Sphenocercus sororius, *Swinh.*; S. formosæ (*Swinh.*); Vinago crassirostris (*Fraser*); Treron nasica, *Schleg.*; Osmotreron wallacei pallidior, *Hart.*; O. everetti, *Rothsch.*; O. aromatica, *Gm.*; Ptilonopus fischeri, *Brügg.*; P. meridionalis, *Meyer & Wiglesw.*; P. marchei, *Oust.*; P. dohertyi, *Rothsch.*; P. albocinctus baliensis, *Hart.*; P. everetti, *Rothsch.*; P. lettiensis, *Schleg.*; P. alligator, *Collett*; P. subgularis, *Meyer & Wiglesw.*; P. mangoliensis, *Rothsch.*; P. ponapensis, *Finsch*; P. hernsheimi, *Finsch*; P. smithsonianus, *Salvad.*; P. mercieri (*Des Murs & Prevost*); P. huttoni, *Finsch*; P. huonensis, *Meyer*; P. quadrigeminus, *Meyer*; P. geminus, *Salvad.*; P. jobiensis, *Schleg.*; P. biroi, *Mad.*; P. ornatus, *Rosenb.*; P. gestroi, *D'Alb. & Salvad.*; P. plumbeicollis, *Meyer*; P. miqueli, *Rosenb.*; P. bellus orientalis, *De Vis*; P. johannis, *Sclat.*; P. bangueyensis, *Meyer*; P. nanus (*Temm.*); P. pectoralis, *Wagl.*; P. granulifrons, *Hart.*; P. lewisi vicinus, *Hart.*; Alectrœnas nitidissima (*Scop.*); all species of Megaloprepia.

The Bulletin

of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums (**H. O. Forbes, LL.D.**),

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals; but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. HENRY YOUNG & SONS, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net per number (per post 2s. 8d. net), or to subscribers at 8s. net per volume (per post 8s. 8d. net.), payable in advance.

Volume I. is now ready, illustrated with 33 engravings, 5 of which are **coloured by Hand**, cloth, extra, top edges gilt, 12s. 6d. net, per post 12s. 10d. net.

Volume II., Part 1, issued May, 1899, contains descriptions of new Birds, Reptiles, Scorpions &c., Butterflies, and Landshells, obtained on the recent Expedition to Sokotra.

JANUARY, 1900. Vol. II. Nos. 3 and 4.

BRITISH MUSEUM NATURAL HISTORY

Bulletin
of the
Liverpool Museums

Under the City Council.

CONTENTS.

On a Collection of Stone Implements in the Mayer Museum, made by Mr. H. W. Seton-Karr, in Mines of the Ancient Egyptians, discovered by him on the Plateaux of the Nile Valley. By Henry O. Forbes, LL.D. (*With Map and Illustrations*) - 77

Contributions to the Zoology of North Queensland. By H. C. Robinson - - - - - - 115

On a New Species of *Aplonis*, from Santa Cruz Island. By Henry O. Forbes, LL.D. - - 116

Catalogue of the Charadriiformes: Auks, Gulls, Skuas; Lark-plovers, Stone-curlews, Jaganas, Sheathbills, Crab-plovers, Coursers, Plovers and Snipes; Pigeons, and Sand-grouse in the Derby Museum. By Henry O. Forbes and Herbert C. Robinson (*With Two Plates*) - - - 117

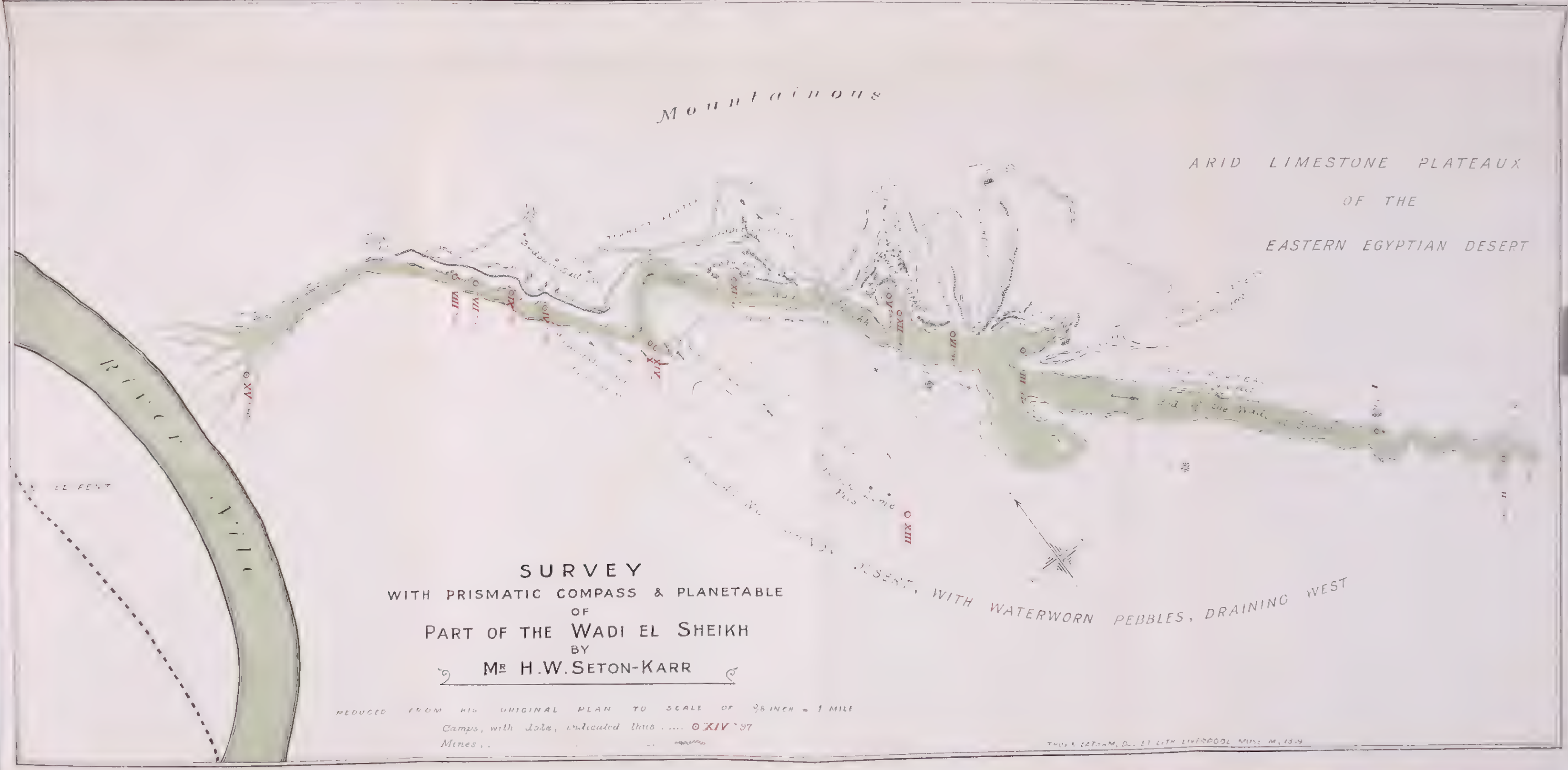
WITH TITLE-PAGE, CONTENTS, AND INDEX TO VOL. II.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, South Castle Street,
and 23, Parker Street.

ISSUED 20th JANUARY.

BRITISH MUSEUM NATURAL HISTORY


Mountainous
ARID LIMESTONE PLATEAUX
OF THE
EASTERN EGYPTIAN DESERT
River Nile
EL FENT
XV
VIII
VII
IX
IV
X
XIV
XI
V
XII
VI
III
XIII
Bed of the Wadi
DESERT, WITH WATERWORN PEBBLES, DRAINING WEST

SURVEY
WITH PRISMATIC COMPASS & PLANETABLE
OF
PART OF THE WADI EL SHEIKH
BY
MR H.W. SETON-KARR

REDUCED FROM HIS ORIGINAL PLAN TO SCALE OF ⅝ INCH = 1 MILE

Camps, with date, indicated thus ..... ⊙ XIV '97

Mines, ...

[illegible] LATHAM, [illegible] LITH LIVERPOOL MUSEUM, 1899

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. II. JANUARY, 1900. NOS. 3 AND 4.

On a collection of Stone Implements in the Mayer Museum made by Mr. H. W. Seton-Karr, in Mines of the Ancient Egyptians discovered by him on the Plateaux of the Nile Valley.

BY HENRY O. FORBES, LL.D.

IN the year 1897 a large collection of flint implements was added to the Mayer Museum by purchase from Mr. Heywood Seton-Karr, who discovered them in the deserts of Egypt in 1896. This gentleman, well known as a big-game hunter in Africa, had, during the previous year or two, discovered in Somaliland a number of stone implements of "palæolithic" types. And it was as he was passing through Egypt, in 1898, on his way back to the Eastern Horn of Africa, in quest of further evidences of early man, that he by chance heard through the Bedawin in his employment of the occurrence, in the deserts east of the Nile, of objects similar to those he was in quest of. The truth of this information was to some extent confirmed by Johnson Pasha, the Chief of the Criminal Investigation Department in Cairo, who had some ten years before picked up a specially fine axe-shaped tool and a few other implements in the district indicated by the Bedawin, near to what he understood from his guides to be ancient workings for gold.

Mr. Seton-Karr, on proceeding to explore the eastern desert, was successful in finding, in one of the tributary wadys of the Nile—the Wady el Sheikh—not only large accumulations of implements, but in discovering also—what was previously unknown—many mines or quarries whence the flint had been extensively extracted by the ancient Egyptians for the purpose of being manufactured. These mines proved to be also the chief workshops where the implements were at least roughly fashioned, if not finally finished and perfected.

In the following year (1896) Mr. Seton-Karr, on re-visiting this part of Egypt, found another mine and workshop in the Wady Sojoor, round which were a very large number, several thousands, of implements, some of them of forms not represented in his collection of the year before. Out of this collection the Mayer Museum has also secured a series of the more interesting and important forms.

Mr. Seton-Karr traversed also a wide strip of desert on both sides of the Nile, and collected in many places, such as near Esna, Abydos, Naqada, Nagh Hamadi, and Thebes, numerous implements of "palæolithic" types lying, not in workshops or near mines, but indiscriminately on the surface of the ground on the high plateaux. Of these likewise the Museum has acquired a series.

In addition to the above, typical representatives out of the collection made by the same traveller in Somaliland, and described by Sir John Evans before the Royal Society of London in 1898, have been received. These last were obtained about 85 miles S.W. of Berbera, near Jalelo, on the right bank of the Isutugan River.

Although reference will be made in the following pages to the collections from the surface of the desert and Somaliland, only the implements from the mines in the Wady el Sheikh (the whole of which the Museum acquired) and in the Wady Sojoor will be described in detail. These comprise about 2000 specimens, but in the figures on pages 82 to 96 nearly all the important types are pourtrayed. A considerable number are roughly blocked out implements laid down in an unfinished state, while the majority are specimens which, by an unlucky stroke when they were partially made, broke in two, and were dropped from the hands of the artificer upon the ground, where the two pieces have lain in close relationship undisturbed since that time till the present day.

The material of which the implements are made is chiefly a yellowish brown or pale grey, opaque, earthy chert, and is but rarely of the translucent chalcedonic variety we are more familiar with from the chalk of England; some of them, however, are of siliceous limestone, containing both magnesium and calcium carbonates. The collection may be classified for the purposes of description into the following groups:—(*a*) bangles or bracelets; (*b*) hatchet and chisel-like tools; (*c*) leaf-shaped flints; (*d*) knife-like instruments; (*e*) hoes, clod-breakers, or agricultural implements; (*f*) fabricators; (*g*) scrapers; (*h*) cores and flakes; and (*i*) nondescript worked stones.

(*a*) **Bangles or Bracelets.**—What was intended to be such an ornament is represented on page 82, Fig. 8. It is unfortunately incomplete, and apparently was broken in the process of finishing. This bracelet had before its accident an internal diameter of about 2 inches; and an external one of 3⅛ inches. It does not require to be pointed out how dextrous the artificer must have been who succeeded in making many such ornaments; or, that these when made must have been considered of great value. Only comparatively few bangles similar to these have been found. There are two complete specimens—twins in form and flaking to that here figured—in the Pitt-Rivers Museum in Oxford, which were described and pictured by General Pitt-Rivers in the *Journal of the Anthropological Institute* in 1881, vol. xi., p. 385, plate xxxi. There he so speaks of them:—"I had for some years possessed two flint bracelets, which had attracted the attention of anthropologists on account of their excellent workmanship. . . They were found in one of the tombs near Kooraeh, but no further particulars respecting them had reached me. These objects being unique, so far as I know, and being undoubtedly genuine, it had always struck me as singular that so unsuitable a material as flint should have been employed for the purpose. The bracelets are entirely formed by chipping, no grinding or polishing being seen on any part of their surface. Amongst the flints which strewed the surface on Gebel Assart were a large number of round nodules. . . . They were evidently imported to this spot for flaking, and most of them were more or less chipped by the flint workers. They all consist of a central body surrounded by a ring of the same material. Mr. Newbold describes these bodies thus: –'I may briefly notice,' he says, 'some singular siliceous bodies that occasionally occur imbedded in the marine limestone, and are particularly numerous in the limestone rocks of Thebes. . . . These bodies [called morpholites by Ehrenberg] usually assume the shape of sphæroids encircled by a belt resembling the delineation of a planet with its belt. . . .' . . The ring or belt surrounding the main body is often divided from it only by a thin partition, and sometimes the ring only is found. . . . The material is identical with that of the bracelets in my possession, and it seems evident that the idea of forming a bracelet of them has been suggested by the form of the stones. By chipping out the central body, or by using a flint from which the central body had disappeared through natural causes, the remaining ring might easily be chipped through into the form of the bracelets . ., thus accounting for the existence of an abnormal structure which, as anthropologists are aware, so rarely presents itself in relics of a barbarous age."

The idea of forming a flint bangle may have originated, as here suggested by General Pitt-Rivers; but no one who compares the figures of the Koorneh bangles in the *Journal of the Anthropological Institute*, with Fig. 8 from the mines of Wady el Sheikh, can fail to be satisfied that they have both been formed in the same manner—for, as I have said above, they are similar in every particular. The series, Figs. 1 to 8, speaks too clearly for itself for any doubt to remain that the stages here represented have not begun with a 'morpholite' ring. The artificer selected or made a flattish flint or siliceous limestone disk (Fig. 1), trimmed it round, then thinned it by flaking it on both sides, sometimes finishing it with great care (Figs. 2, 3, 4), sometimes, however, proceeding to the next stage (Fig. 5) without wasting his time on what too often proved to be a fruitless labour. For the next stage involved the delicate and extremely dangerous operation of perforating the disk. From Figs. 2, 3, and 4 it may be seen that this stroke, while in every case making a perforation, broke also the disk—Fig. 4 more clearly than the other two showing the small cone which had successfully been displaced, though at the same moment the operation fractured the disk. Figs. 5, 6, and 7 show how the first perforation was enlarged by judiciously chipping it into a wider and wider ring, while Fig. 8 illustrates an almost completed ornament, in which the careful and anxious labour of many days was lost by a most unlucky, but by no means necessarily a careless, stroke of the artist.

M. de Morgan in his *Recherches sur les Origines de l'Égypte* (vol. i. p. 147), and Mr. Spurrell, in Petrie & Quibell's *Naqada and Ballas*, pl. lxxv., fig. 100, figure specimens of very delicate bangles from Abydos and Ballas respectively (of which the Mayer Museum possesses a specimen, presented by the Egypt Exploration Fund), which have been finished by grinding and polishing till the thickness of the flint is reduced to $\frac{3}{20}$ of an inch, a most surprising piece of workmanship, which calls from M. de Morgan the remark, "Les bracelets de silex sont à coup sûr les pièces les plus curieuses du préhistorique égyptien, et l'on se demande avec raison comment il a été possible de tailler par éclats, sans briser l'objet, des anneaux de $0^{m},07$ de diametre exterieur et de $0^{m},005$ seulement d'epaisseur. . . . Ce ceul fait suffirait pour qu'il soit permis de considérer les autochtones de l'Égypte comme les plus habiles ouvriers de l'antiquité dans la taille du silex." Mr. Spurrell, supporting the theory of General Pitt-Rivers, holds that these

Ballas bracelets "were made by chipping rings of flint naturally formed." M. de Morgan, on the other hand, suggests the manner of fabrication to have been what our figures prove was certainly one method of procedure, and he believes that the piercing of the "*trou initial*" was done by means of a pointed punch of quartz. Punches, indeed, made of flint flakes which might well have been so used, occur in Mr. Seton-Karr's collection. Mr. Spurrell observes also that in section these beautifully and delicately finished rings show "a great change at the surface, greater than their age would warrant if made out of flint directly from the rock, though just such an amount as might be expected from flint which had lost part of its silica by exposure in the gravel and become porous." The ring fragments figured on page 82 have been made out of flint quarried directly from the rock; but as different qualities of flint apparently vary in rate of weathering, it may still be that these Abydos and Ballas specimens are really the final stage of such rings, as Fig. 8 and those now in the Oxford Museum, when they are made of weathered flint. Yet, on the other hand, it is more probable that the "morpholite flints," being in a different physical condition, were the first stage of those marvellously delicate *bijoux* which were perhaps, therefore, made chiefly by careful grinding and little, if at all, by chipping.

(*b*) **Axe and Chisel-like Tools.**—These implements, illustrated on pages 83 to 86 (Figs. 9 to 17), have all a general axe-like form. The majority of them are more or less pointed at one end, with a wider rounded, but not a finely worked effective or cutting edge at the other, and were very probably intended to be attached to a split wooden handle. Figs. 9, 10, and 11 are implements elegant in shape, narrowing from their pointed end in a graceful outward curve to their widest part, whence commences their arcuate edge. Fig. 9 is $7\frac{3}{4}$ inches in length by $4\frac{9}{16}$ at its widest part. Mr. Seton-Karr has figured in the *Journal of the Anthropological Institute*, vol. xxvii. pl. i. fig. 2 (1897), a very finished specimen of this type (found by Johnson Pasha), of the same dimensions as Fig. 9. Fig. 10 $7\frac{5}{16}$ inches long widens gradually from its narrower (unfortunately broken) end towards its operative edge, where it is 5 inches wide. Fig. 11, in size $6\frac{7}{16}$ inches long by $3\frac{5}{16}$ at its widest part where the arcuate edge commences, is less neatly finished. Fig. 15, which is $6\frac{3}{4}$ inches long by $3\frac{7}{8}$ at the tangents to its cutting edge, is very similar to it. Fig. 12 is $8\frac{11}{16}$ inches in length, and has its margins convex and the cutting edge nearly straight, and so its widest part ($4\frac{1}{2}$ inches) is near the middle of the blade. Though larger, this specimen closely resembles two implements found in the kitchen-middens of Kom-Achim, and figured by M. de Morgan in his *Recherches sur les Origines de l'Égypte*, vol. i. page 140, figs. 296, 297. Fig. 13 ($8\frac{9}{16}$ inches long by $5\frac{1}{16}$ at its widest part) is more pointed at the narrower end than any of the specimens so far noticed, and has its cutting edge more arcuate. Fig. 14 is of quite a different form, and had probably also a different use. It is $9\frac{7}{8}$ inches in greatest length, and $5\frac{3}{16}$ in greatest breadth. It is a flattish spear-shaped flint, with an equilateral triangular tang $2\frac{5}{8}$ inches beyond its widest part, for attachment, perhaps, to a shaft by a figure-of-eight lashing, so as to be used as a spear or javelin point. In its present unfinished state it is, however, impossible to say what it was really intended for. Fig. 17 is a very shapely chisel-like implement, $6\frac{3}{4}$ inches in length, widening gradually from 2 inches at its head to 3 inches at its widest part, where the arcuate edge begins. It is flat on one surface, and flattish, though more flaked, on the other, having a thickness of $\frac{1}{8}$ to $\frac{3}{4}$ inch. It is remarkably similar to examples of 'axes' or 'hoe-blades' figured by M. de Morgan in the work already cited (vol. i. figs. 76*, 77, and 78, p. 96,

---

* This specimen measures $6\frac{4}{5}$ inches in length, and widening from $1\frac{4}{5}$ at the head to $3\frac{1}{10}$ at the tangents to its cutting edges, while its thickness is $\frac{1}{5}$ inch.

VIEW OF RIGHT BANK OF THE WADY EL SHEIKH. FROM ABOVE CAMP XII.

(*From a Photograph by Mr. H. W. Seton-Karr.*)

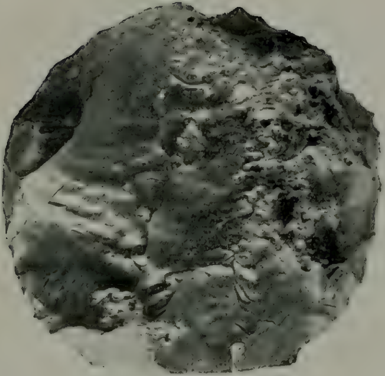


FIG. 1.

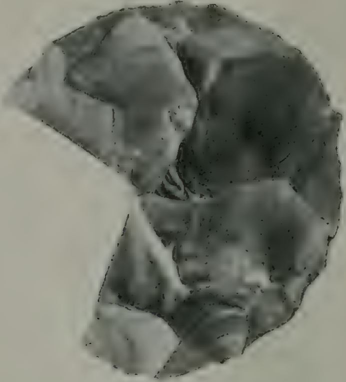


FIG. 2.

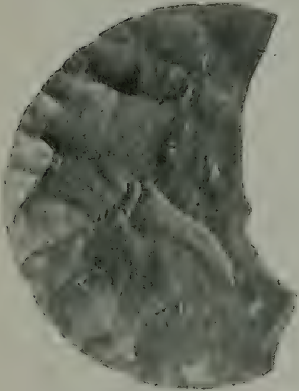


FIG. 3.

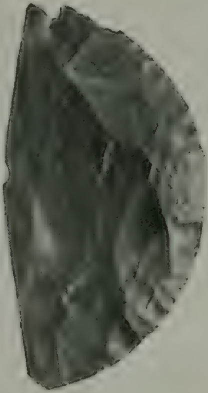


FIG. 4.

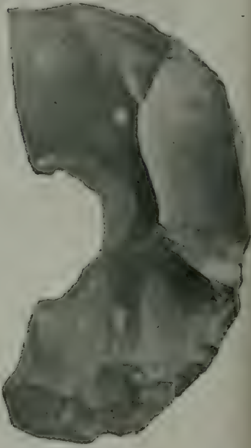


FIG. 5.

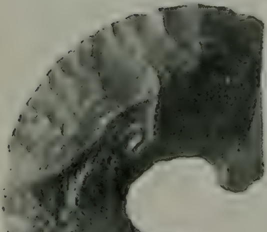


FIG. 6.

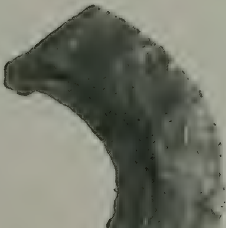


FIG. 7.

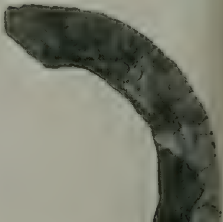


FIG. 8.

BRITISH MUSEUM

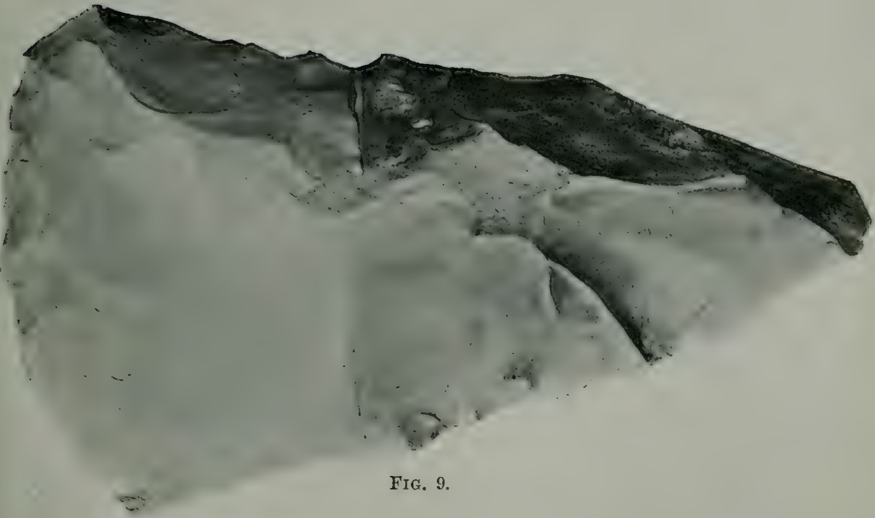


FIG. 9.

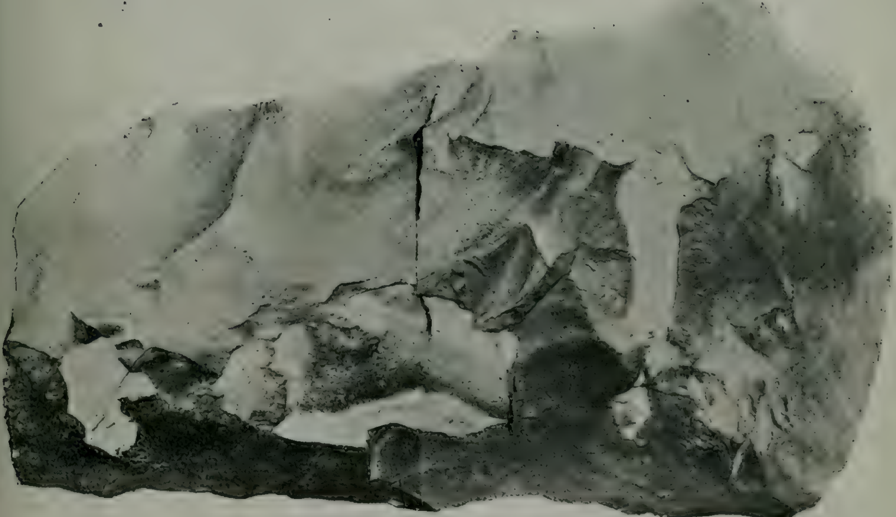


FIG. 10.

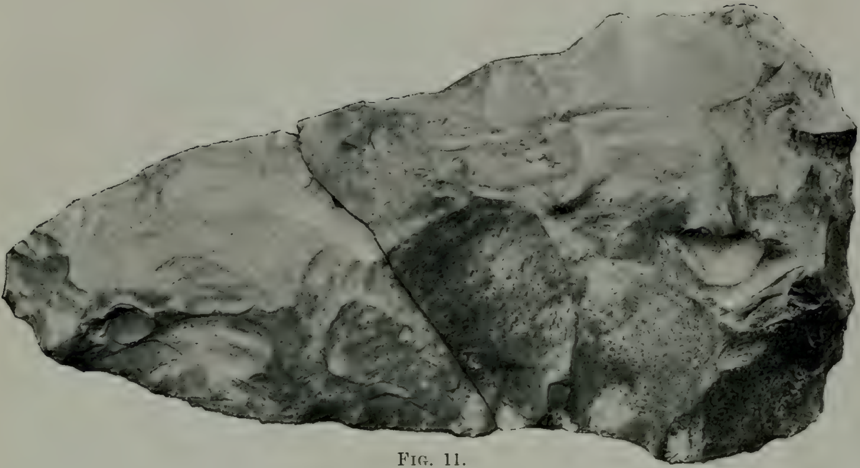


FIG. 11.

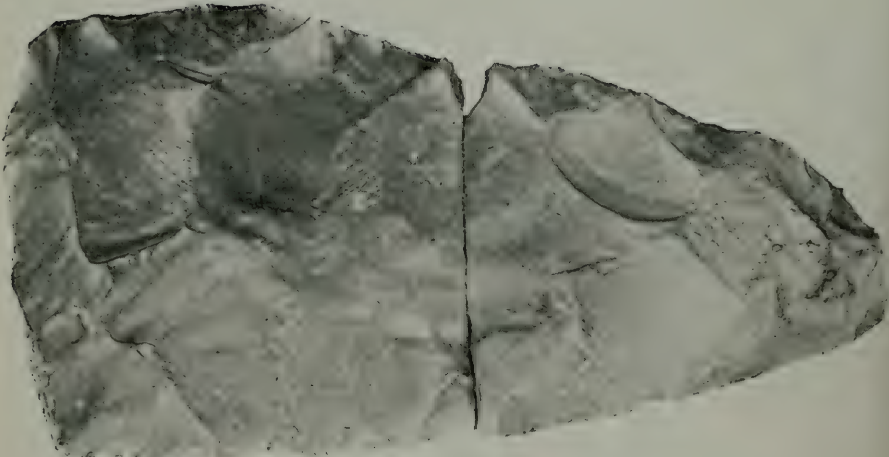


FIG. 12.

BRITISH MUSEUM NATURAL HISTORY

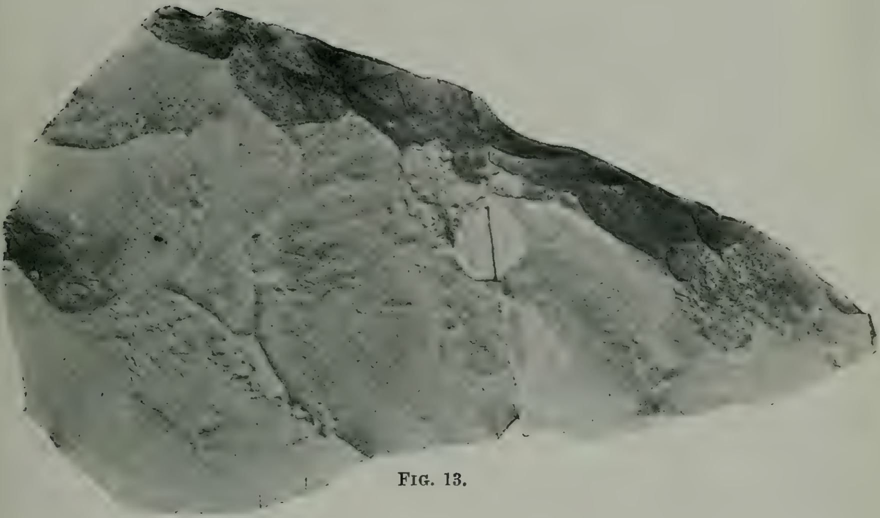


FIG. 13.

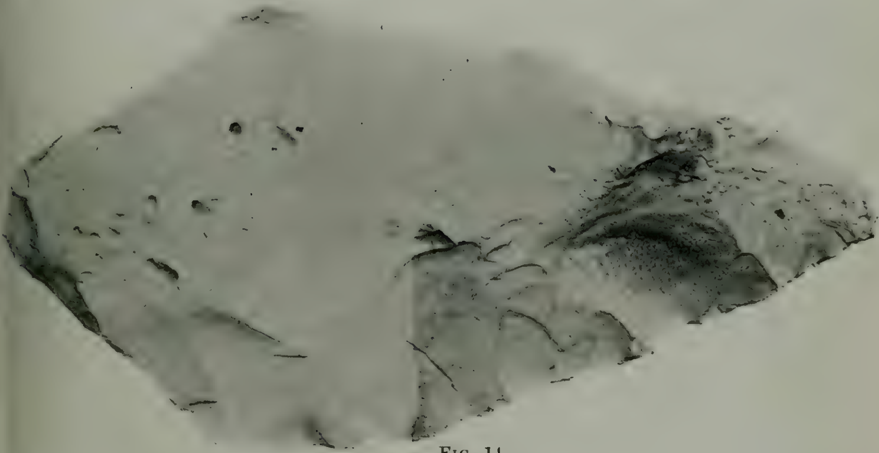


FIG. 14.

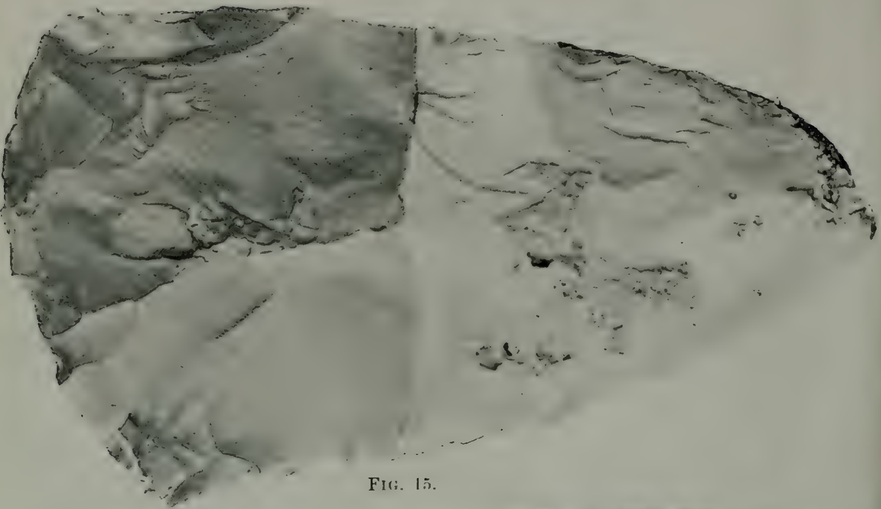


FIG. 15.

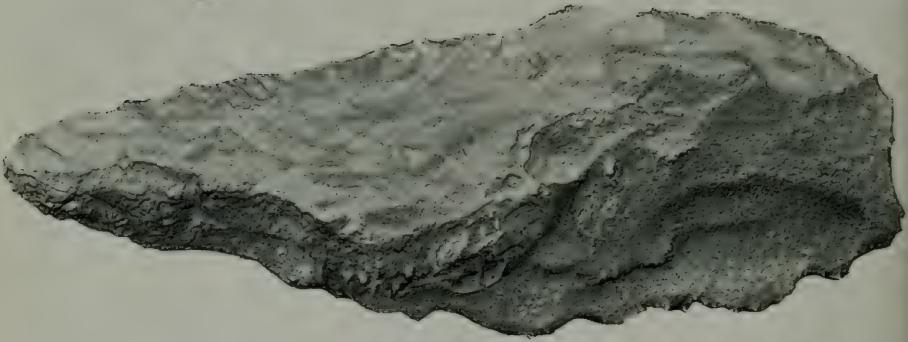


FIG. 16.

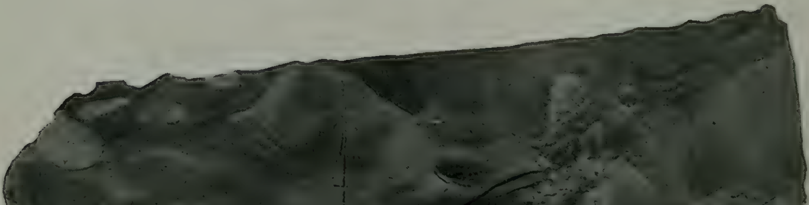


FIG. 17.

BRITISH MUSEUM NATURAL HISTORY

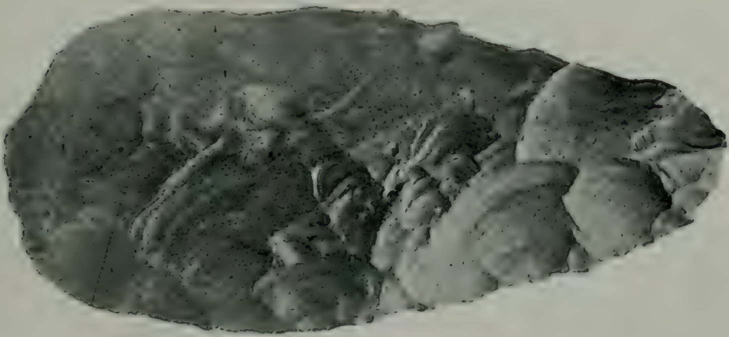


FIG. 18.

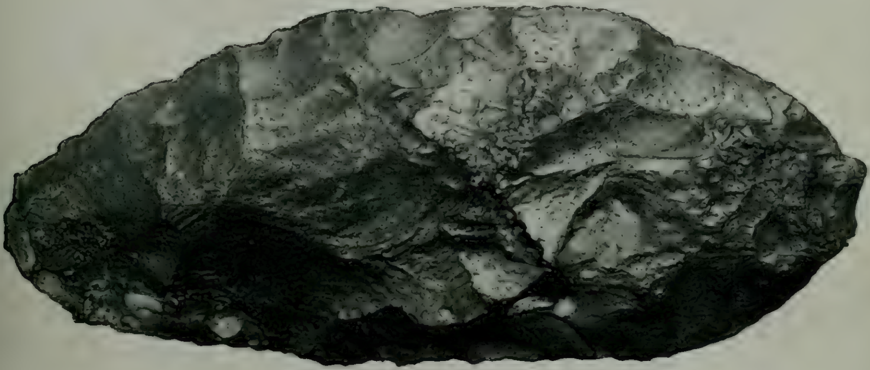


FIG. 19.

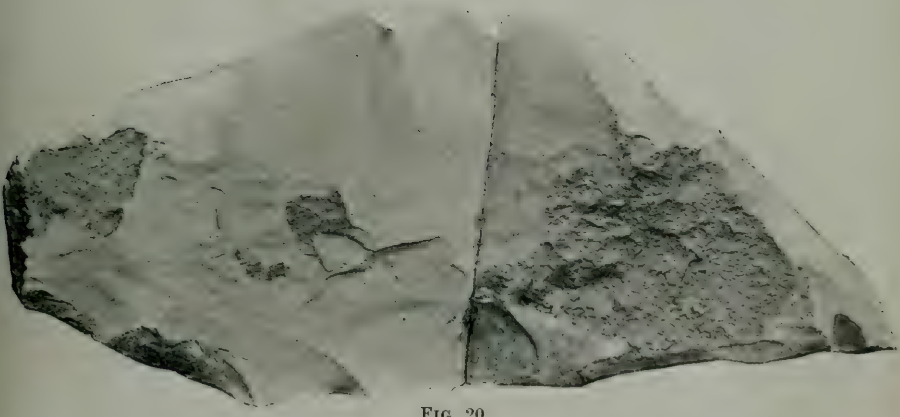


FIG. 20.

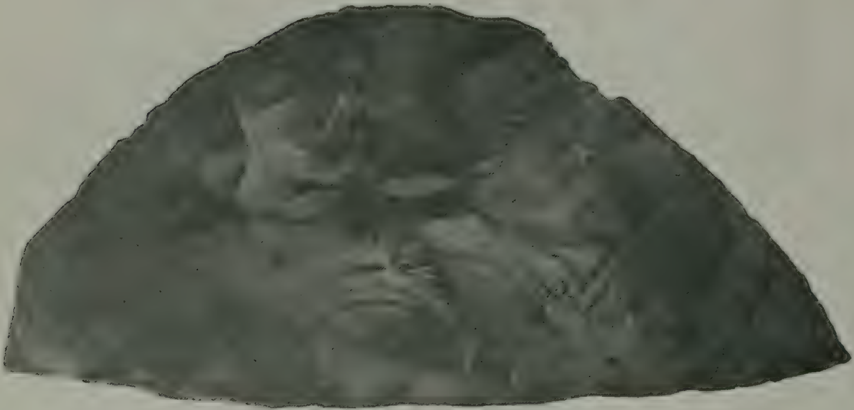


FIG. 21.

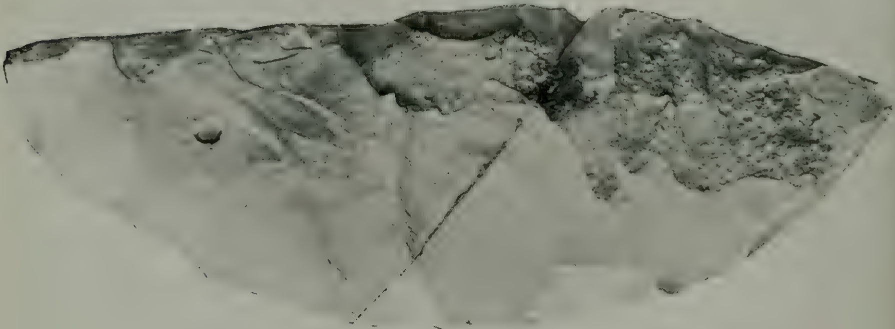


FIG. 22.

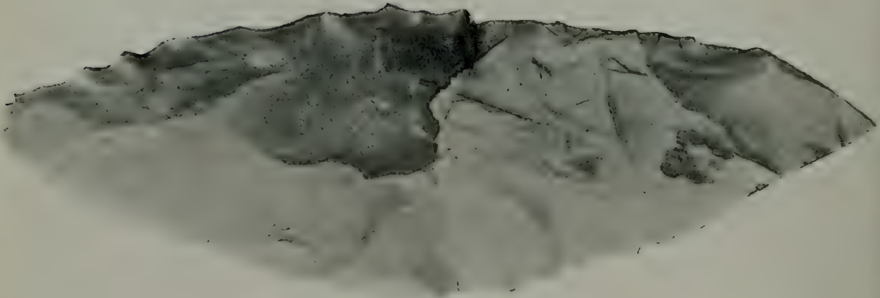


FIG. 23.

BRITISH MUSEUM NATURAL HISTORY

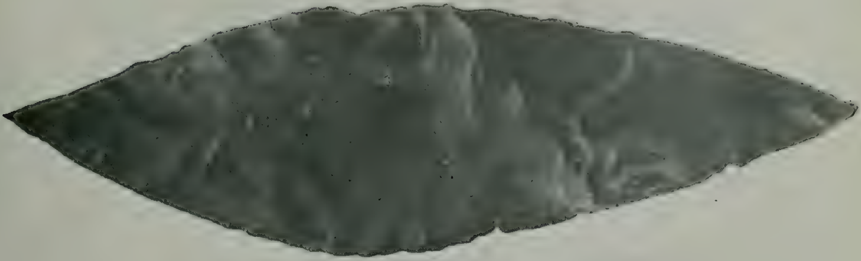


FIG. 24.

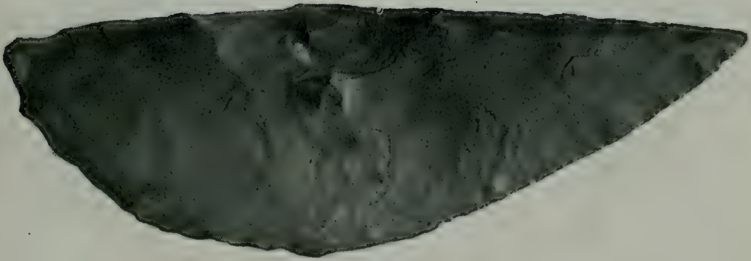


FIG. 25.

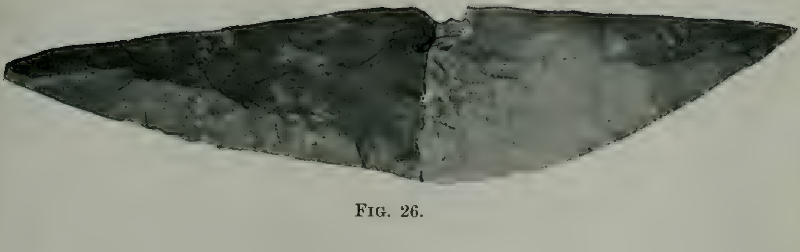


FIG. 26.

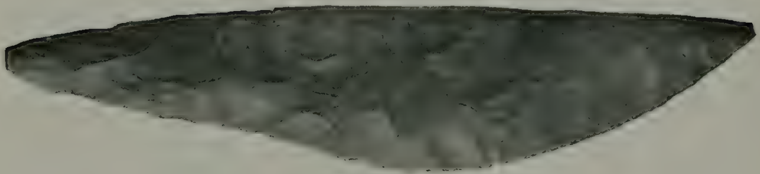


FIG. 27.

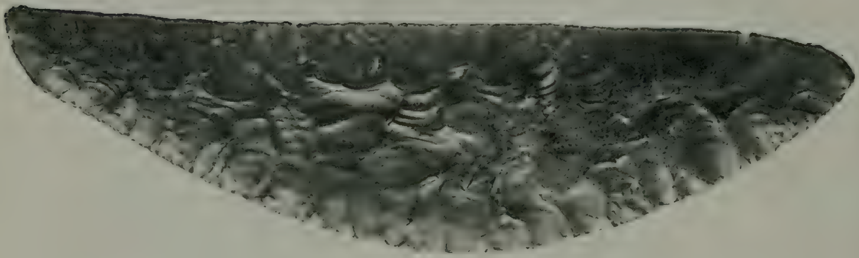


FIG. 28.

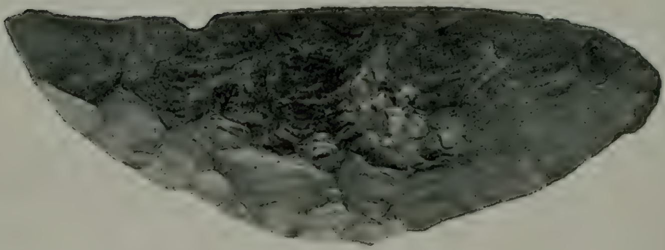


FIG. 29.

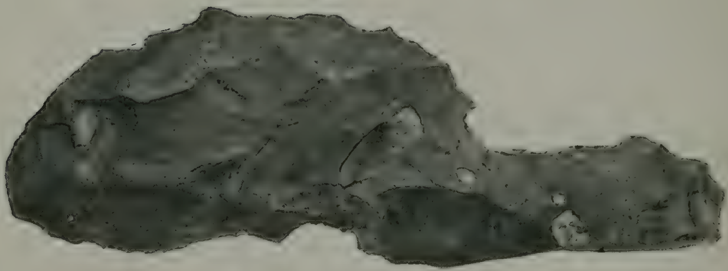


FIG. 30.

BRITISH MUSEUM NATURAL HISTORY

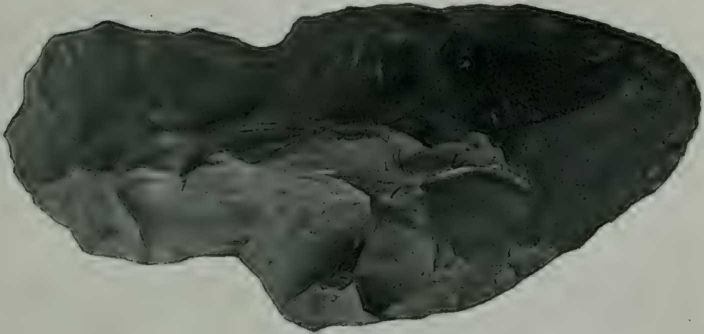


FIG. 31.

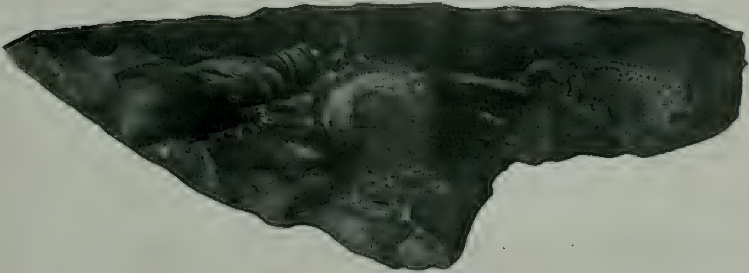


FIG. 32.

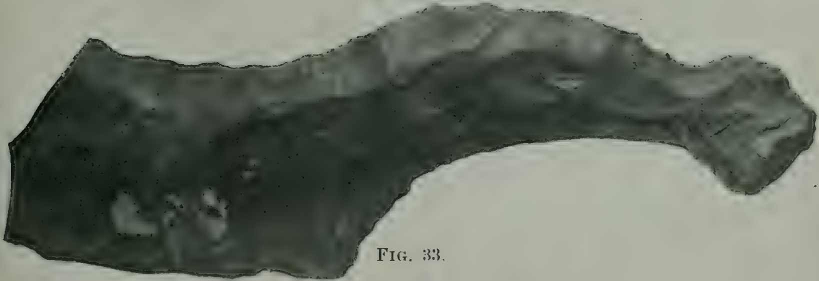


FIG. 33.

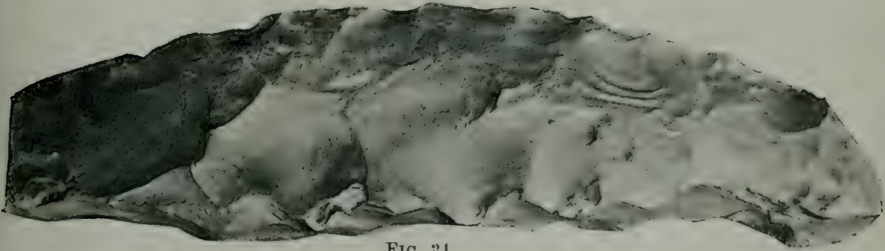


FIG. 34.

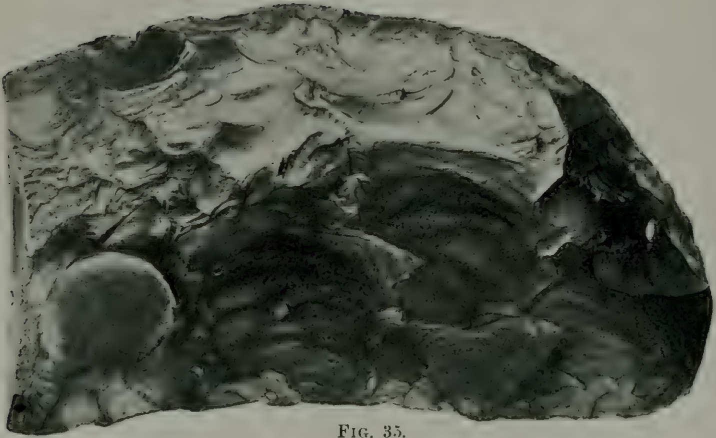


FIG. 35.

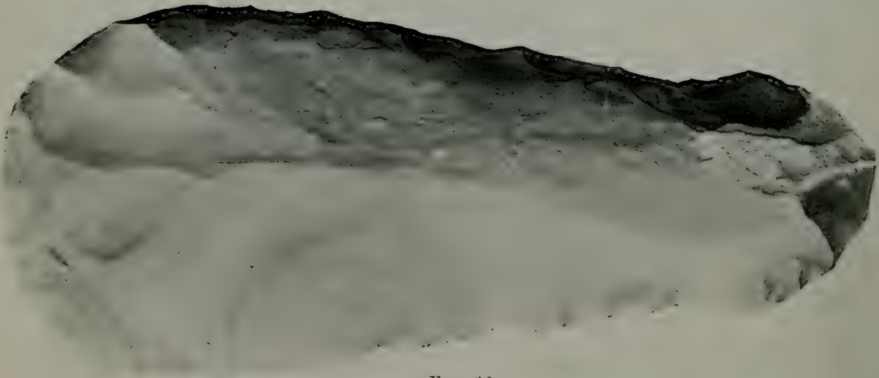


FIG. 36.

BRITISH MUSEUM NATURAL HISTORY

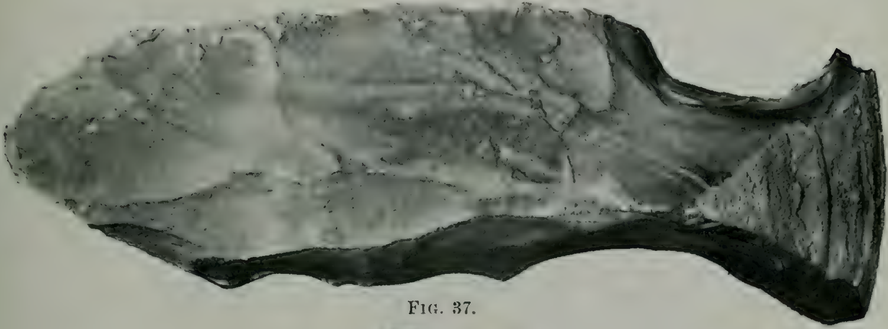


FIG. 37.

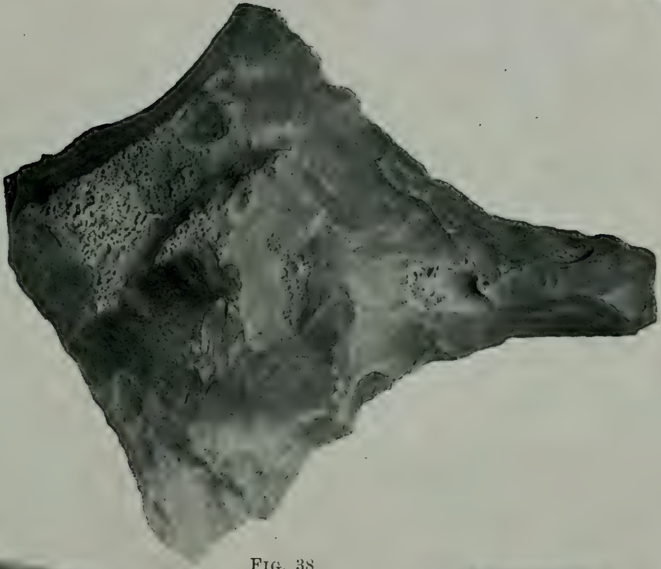


FIG. 38

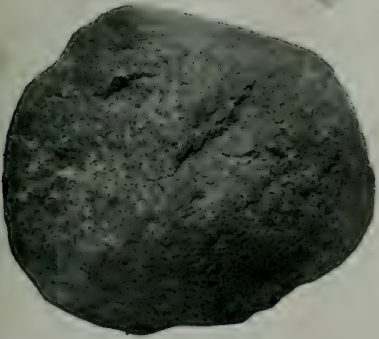


FIG. 39.

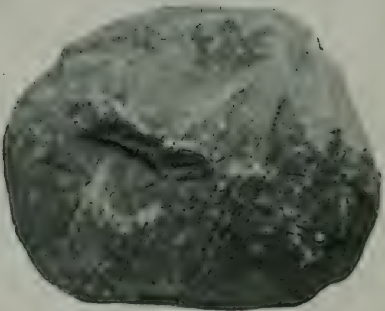


FIG. 40.

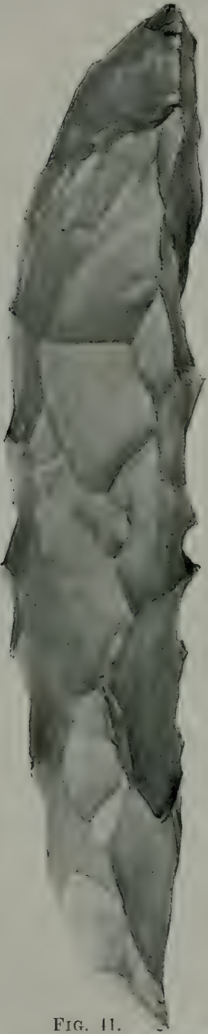


Fig. 41.

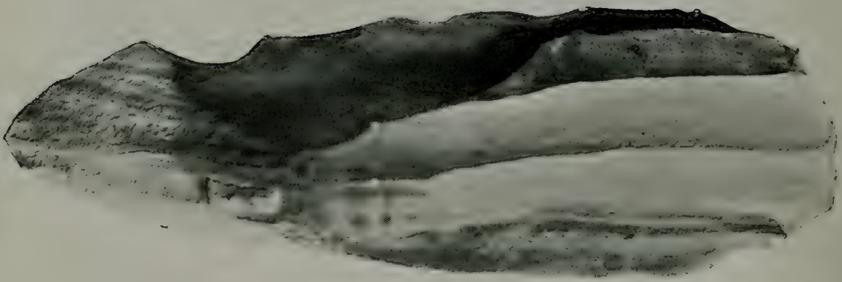


Fig. 42.

BRITISH MUSEUM NATURAL HISTORY

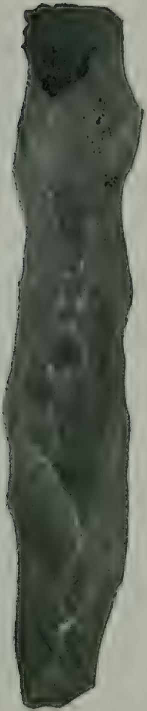


FIG. 43.

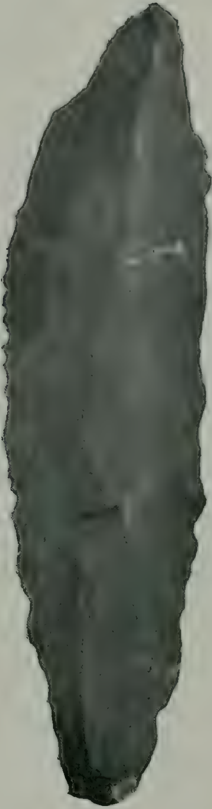


FIG. 44.

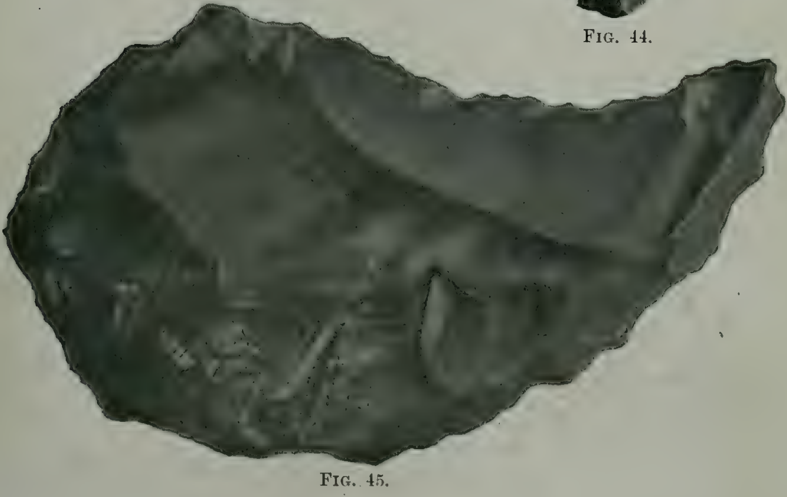


FIG. 45.

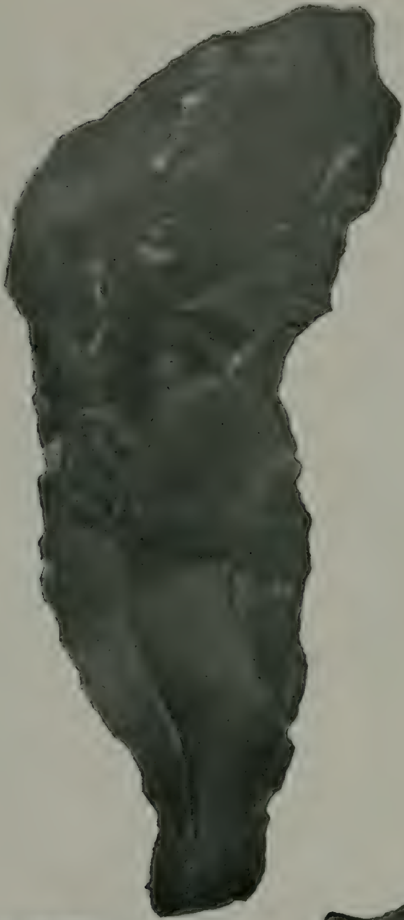


FIG. 46.

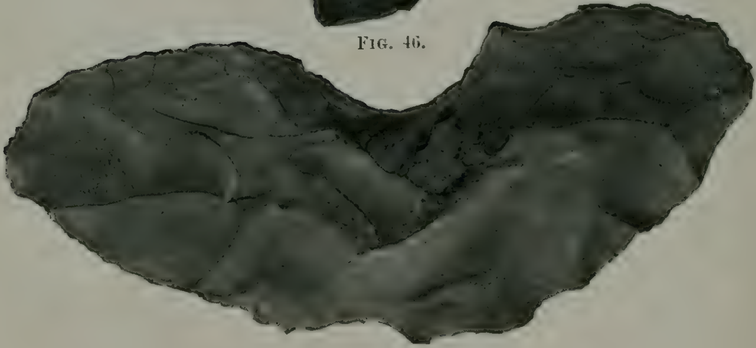


FIG. 47.

BRITISH MUSEUM NATURAL HISTORY

and vol. ii., p. 96), from Akhmim and Hoou (in Upper Egypt), and even more so to one obtained by Prof. Petrie at Kahun, and figured in his *Illahun, Kahun, and Gurob* (pl. vii.*, fig. 1). Fig. 16—$9\frac{1}{8}$ inches long—is in form more "palæolithic" than most of the others. It is deeply eroded by the action of sand, and stained almost black by exposure to the weather. From a more or less rounded butt, which is $3\frac{3}{8}$ inches at its widest, it narrows to a point, which was evidently the operative end when the thicker part was grasped in the hand. It may have been used with the thin end in the hand as a hammering or chipping instrument. The lower right-hand border in the figure shows subsidiary flaking to produce a singular undulating margin, unless this may perhaps be the result of using the tool. The flint out of which it is made is the same greyish chert seen in the others above described, and associated with it in the workings. There are two or three others in the collection similar to it.

(*c*) **Leaf-shaped Flints.**—In Figs. 18 and 19 I have shown two of these oval or leaf-shaped implements, the former being $6\frac{7}{16}$ inches long by $2\frac{5}{8}$ wide; and the latter $4\frac{1}{4}$ long by 2 wide. They are well and symmetrically chipped, and about equally convex on both surfaces. The side in each exposed to the weather is almost black, and brightly polished by natural causes. As they have neither cutting edges nor sharp points, it is difficult to conjecture for what use they were intended.† Sir John Evans figures, from Fimber, on page 337 of his *Ancient Stone Implements* (Ed. 1897), what he designates as a "lance head," which, though somewhat smaller in size—being $3\frac{4}{5}$ inches long by $1\frac{4}{5}$ wide—and more rounded at the ends, is sufficiently like ours in general appearance to suggest that they had all three the same use, whatever it may have been.‡

(*d*) **Knife-like Instruments.**—The sixteen instruments shown in Figs. 20 to 35 present a great variety of forms, but they all appear to me to be modifications of cutting instruments. While some are only rough-hewn, others have had much careful work bestowed on them. Others, again, were nearly completed when they were seemingly broken by an unlucky stroke, and a few, beautifully finished, were left at the workshop—one wonders why. Figs. 20 to 23 and 28, 29, and 33 to 35 are all from the Wady el Sheikh mines, the remainder being found at the workings in the Wady Sojoor. Fig. 20 (which is $7\frac{1}{4}$ inches long by 3 inches wide) is a flat, roughly blocked out implement, suitable for a flaying instrument, whose sharp edge, $3\frac{3}{4}$ inches in extent, was to run along the upper right-hand side. Fig. 21 (represented here of the natural size), has a nearly semicircular back, with a slightly arcuate cutting face, and was probably used in scraping or preparing hides. The same use may be assigned to the next implement (Fig. 22), which is considerably longer, though only slightly broader, being $7\frac{1}{8}$ inches by $2\frac{5}{8}$. Figs. 23 and 24 are, the one a partially fashioned, and the other an almost fully finished, double-pointed knife; the former is $9\frac{1}{2}$ inches long by $3\frac{1}{16}$ wide, and the latter $6\frac{3}{16}$ inches long by $1\frac{13}{16}$ wide. Such a knife might well be used dagger-wise in piercing the heart or the throat in the slaying of cattle for food or sacrifice, as in the scenes pourtrayed on the Beni Hasan inscriptions, where the killing, flaying, and cutting-up of animals are very vividly depicted. The knife was probably used with one end wrapped round with cord or fibre, or, quite probably, inserted in a wooden handle. Fig. 24 is skilfully worked on both sides, and is very similar to those implements which Sir John Evans designates "javelin-heads"; and indeed, except that it is longer, our implement approaches in form and in style of flaking to a specimen from an oval barrow on Winterbourn Stoke Down, figured in *Ancient Stone Implements* (p. 371, fig. 273). Figs. 25 and 29 (both represented of the natural size) are—or were intended to be—pointed knives, with a straight back, a curved cutting edge, and a somewhat rounded handle-end, which in use would, no doubt, be whipped round with cloth or papyrus leaves. Figs. 26, 27, and 28 are all beautifully flaked instruments, useful either for cutting or puncturing. They differ from Figs. 25 and 29 in having the handle-end (to the left in the figure) more pointed, especially in Figs. 26 and 27, where that portion of the flint is narrowed as if to receive a whipping of some sort, or to be inserted in a wooden handle. The dimensions of these three instruments are:—Fig. 26, $9\frac{5}{16}$ inches long by $2\frac{1}{16}$ at the widest part of the blade; Fig. 27, $7\frac{9}{16}$ inches long by $1\frac{3}{4}$ across the blade; and Fig. 28, $7\frac{13}{16}$ inches long by $2\frac{1}{4}$ at its widest part. An implement very similar in form to those of Figs. 25 and 28 is figured by Prof. Petrie* among the stone implements discovered by him in Kahun, a town of the XIIth dynasty. Figs. 26, 27, and 28 recall the flint knives found in Scandinavia. Indeed, many of the specimens collected by Mr. Seton-Karr in the Wady Sojoor (and still in his collection) are hardly to be distinguished from many of those from Denmark. Fig. 30 ($8\frac{5}{16}$ inches long by $2\frac{3}{4}$ at the widest part of the blade) is a rough-hewn cutting implement, with a tang 3 inches in length for the attachment of a handle. The same form—similar to IVth dynasty implements—has been figured by M. de Morgan, both uncompleted† (found at Dimeh) and in a beautifully finished state‡ (supposed to be from Abydos). Fig. 31, also a roughly blocked out implement, was apparently intended to be double-edged, and to be attached by a tang—$2\frac{1}{10}$ inches in length—to a lance-shaft as its tip. Its length is $5\frac{11}{16}$ inches, and its greatest breadth $2\frac{5}{8}$. In Fig. 32 we have a triangular-bladed or harpoon-shaped implement, $7\frac{7}{8}$ inches long by $2\frac{7}{8}$ in greatest breadth, having a tang $2\frac{3}{4}$ inches in length, by which it was probably attached to the point of a spear-shaft or a fish-harpoon. Professor Petrie has figured§ a nearly identical specimen (with its point unfortunately broken off), found by him in Kahun, and M. de Morgan one found at Toukh on the surface, while the Mayer Museum possesses from Egypt a similarly shaped implement, of unknown history, in copper or bronze. Fig. 33 is a fragment of unusual shape, $5\frac{7}{8}$ inches in length (classed under the present section for want of a better surmise as to its use), showing little more than the butt end, with a knobbed termination, as if it had been intended to tie it to a handle or shaft. Figs. 34 and 35 (the former a rough three-sided bar of flint, $7\frac{1}{2}$ inches in length by $2\frac{3}{16}$ wide, and the latter a flat disk of the natural size) are evidently, the one a roughly blocked out knife, and the other the terminal fragment of a rough-hewn blade broken in the making.

---

* The dimensions of this 'axe' or 'hoe' are about $7\frac{4}{5}$ inches long, narrowing from $2\frac{1}{10}$ inches at the head to $3\frac{9}{10}$ at the cutting edge.

† Prof. Herdman, F.R.S., suggests to me that they may have been employed for scooping out boats, scraper-wise—a not at all improbable use.

‡ The forms described under sections (b) and (c) are, with the exception of Fig. 14, identical, as Prof. Boyd-Dawkins has kindly pointed out to me in the Manchester Museum, Owens College, with some of the unfinished implements from the flint *ateliers* of Cissbury, near Worthing. Both were found by him under similar conditions, close to and in the flint mines.

(*e*) **Hoes, Clod-Breakers, or Agricultural Implements.**—Of the forms represented in Figs. 36 and 37 the large number in the collections indicates that they were implements in extensive demand. The former (Fig. 36), a very symmetrically formed tool, is $6\frac{1}{2}$ inches in length and $2\frac{3}{4}$ at its widest part. It is knobbed at the handle, from which it widens gradually to a beautifully rounded effective end. The surface presented in the figure is bevelled from a central ridge, while the lower is worked to a smooth cycloidal curve. It was evidently lashed, when in use, to some sort of handle, and may have been employed as a hoe. One specimen is made of a flint containing a large quantity of lime. Fig. 37 was found in large numbers in the majority of the mines in the Wady el Sheikh. It is a roughly triangular pointed block of flint ($8\frac{1}{4}$ inches long by $2\frac{1}{4}$ wide), with a long deep notch in front of a prominent knob to serve either as a grip for the hand, or to receive numerous plies of strong thong or cord to attach it to a wooden handle for use perhaps in some agricultural operation, such as clod-breaking. Mr. Seton-Karr has suggested that these "truncheons," as he names them, were tools used at the mines by the artificers (hung when not in use to their waist by a thong), in the fabrication of other stone implements, or to dig the flint nodules out of the limestone in which they occur. It seems difficult to reconcile this opinion with the fact that not one of the many examples brought to England in this collection presents a sign of having been used for any purpose, as they must have shown had they been quarry or workshop tools. Many of them, indeed, are unfinished, having neither handle nor knob. They must be implements either half made, or, though very rough, finished sufficiently for the purpose for which they were intended. Fig. 38, found in the Wady Sojoor, is, so far as I know, unique in collections from Egypt or from anywhere else. It is a flattish, quadrilateral, Maltese-cross-shaped piece of flint, with one of its angles elongated into a point. Its length is $8\frac{13}{16}$ inches, and its greatest breadth $7\frac{9}{16}$. If it is not a rough-hewn implement only, unrecognisable in its present form, it was used in one of two ways: either the elongated point was a handle and the tool was a pick, in which case the lower angle (in the figure) would be the operative end, where there are indeed marks of wear, if they be not rather pittings due to the heat of the sun; or the flint was fixed to a handle by a figure of eight lashing, when the operative end would be the longer pointed (right-hand) angle; but, if so, I can suggest no use to which the implement could be put. There is a suggestion in it of the curious instrument "like three celts conjoined . . . to form a sort of tribrach," figured by Sir John Evans in his *Ancient Stone Implements* from the Isle of Wight (p. 77, fig. 25A).

---

* *Illahun, Kahun, and Gurob*, pl. vii., fig. 7.

† *Recherches sur les Origines de l'Égypte*, vol. i. p. 109, fig. 118. ‡ Id. i. p. 110, fig. 124.

§ *Illahun, Kahun, and Gurob*, pl. vii., fig. 16.

(*f*) **Fabricators.**—The two cylindrical fabricators or hammer-stones seen in Figs. 39 (formed of siliceous sandstone) and 40 (of limestone) are both nearly of the same size, about 3 inches in diameter and $2\frac{1}{2}$ between the flattened ends, which show signs of wear. Their provenance is the Wady el Sheikh, near Camp XV., 1897 (see map), where they were not numerous; but they might equally well have come from a Yorkshire barrow from any difference in form they present. M. de Morgan has figured specimens* very similar to these from the kitchen-middens of Toukh in the Nile Delta.

(*g*) **Scrapers.**—Fig. 47 represents a scraper ($5\frac{1}{2}$ inches long by $2\frac{1}{2}$ wide) of typical "palæolithic" form, found at one of the workshops near Mr. Seton-Karr's Camp X. in 1897, in the Wady el Sheikh. Its exposed face is tinted by age a black colour almost, and its surface is soft and velvety. The flint of which it is formed is the same quality, and presents the same general facies as all the other implements from the same district. It is hardly less ancient in appearance than another scraper (Fig. 45, natural size), or the doubtful scraper (Fig. 46, natural size), both of which, of unmistakable "palæolithic type," were picked up from the surface of the western desert near Thebes. They present, perhaps, a more velvety surface on both faces, but their reddish brown "æonic tinting" is no deeper than, if it be even as deep as, that of Fig. 47.

---

* Op. cit. p. 91, fig. 57.

(*h*) **Cores and Flakes.**—Flint cores (of which Fig. 42—a trihedral wedge or "shoe-shaped" blocklet of flint $5\frac{5}{16}$ inches long by $1\frac{3}{4}$ wide—is an illustration) are very numerous in the collection. From them were evidently struck the many thousands of long fine flakes which were lying all around at the *ateliers* in the Wady el Sheikh and Wady Sojoor. Only a very few, however, of the flakes appear ever to have been worked or used for any purpose, as their margins are quite perfect and unbroken. One or two are roughly pointed, perhaps to be used as punches; and if so, probably in making the initial perforation in the flat disks intended for bracelets. Flint flakes were extensively used, it is believed, by the stone masons in dynastic times to smooth as well as to inscribe the faces of limestone blocks, and also in the operations connected with the preparation of the corpse for mummification. Why so many thousands of them—all perfect as flakes—should have been struck off and never carried away is difficult to comprehend. One can easily perceive that they were not refuse-chips discarded in the formation of some other implement out of those shoe-like flints (Fig. 42), for these were evidently never intended for anything but cores. Many of them, indeed, have been worked down almost to the stump and so left. M. de Morgan* who states that these nuclei are very abundant in Egypt in every district from Cairo to Thebes, figures, from the kitchen-middens at Toukh, somewhat similar examples to that shown on page 94.

(*i*) **Nondescript Worked Stones.**—In the collection there are many rough-hewn heavy bars of flint of which Fig. 41 is a good example. This block (17 inches in length by $3\frac{1}{2}$ deep), is three-sided, and more pointed at one end than the other; the ridge of its rough triangle is zig-zagged by having large flakes struck off alternately and equidistantly from each side of the middle line. Unless a very long knife, or a long hoe or digger to be used attached to an angled haft, were to be manufactured from this stone, it is difficult to conjecture for what use it was intended. Some of these blocks, I may remark in passing, are deeply pitted by sun-flaking. Figs. 43 and 44 are other roughly blocked out implements of unknown use. Fig. 43 is more or less five-sided, $7\frac{3}{4}$ inches long, $1\frac{1}{8}$ wide, and $2\frac{5}{8}$ deep. Fig. 44, a trihedral bar, is $9\frac{1}{2}$ inches in length by $2\frac{1}{2}$ across the base. I find it quite impossible to suggest a probable use for the tools of which these heavy stones are the rough-hewn outlines.

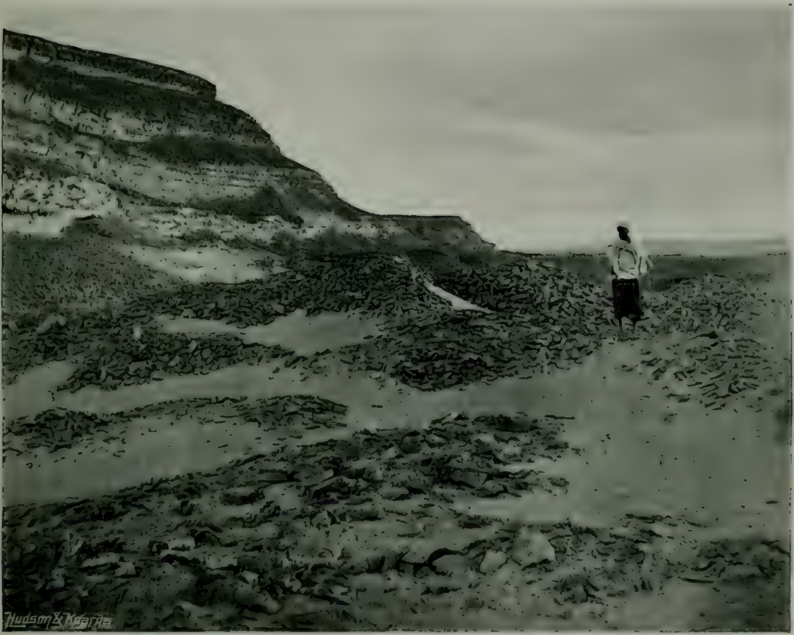
From Cairo southward as far as Esna—about 500 miles—the Nile, as every tourist knows, runs in a deep but comparatively narrow valley. The banks are high and precipitous—much higher on the eastern side than on the western—the walls being of limestone of which the lower strata are of Upper Cretaceous age, and the higher of the well-known nummulitic beds of the Eocene, full of flints. The yellowish white or yellowish brown walls of these escarpments—descending in many places in three great steps to the river plain—have their beds so symmetrically laid one above another as to seem, as Maspero has well remarked, "more like the walls of a town than the side of a mountain." The "tread" of these steps forms more or less level plateaux; the tableland of the highest terrace extending on the east of the Nile into the

---

* Op. cit. pp. 90, 91.

Arabian, and on the west into the Libyan deserts. Above Esna the limestones disappear, and give place to the far southward-extending Jurassic (Nubian) sandstones which repose on the igneous metamorphic rocks constituting the core of the African continent. As the flint nodules are found only in the nummulitic limestone, just as they are in the chalk of England, the implementiferous districts of the Nile Valley naturally lie between Cairo and Esna.

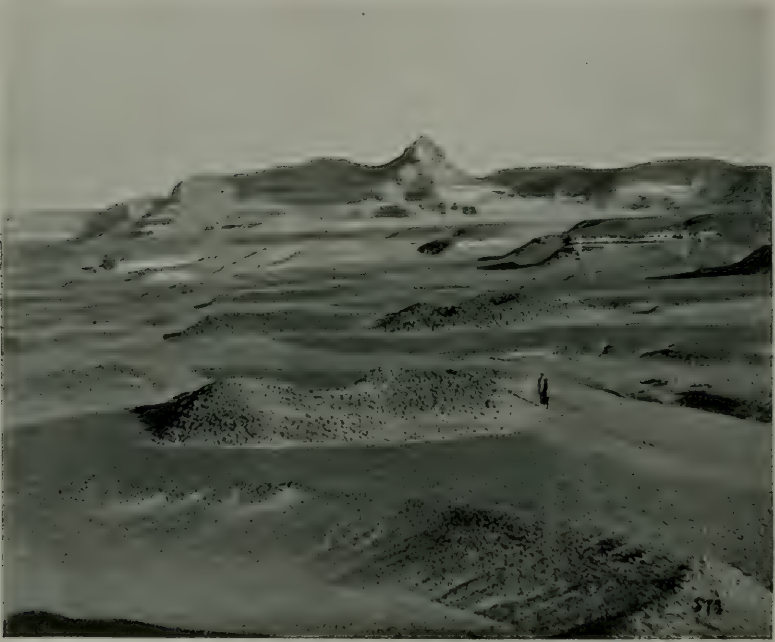
The quarries or pits, from which the main collection I am now describing came, are situated in the Wady el Sheikh. This Nile tributary (now, of course, nearly always dry) opens from the south-east into the mud-plain of the river opposite El Fent, which is situated half-way between the stations of Feshn and Maghagha on the railway from Cairo to Assiout. The Wady Sojoor, in which was situated the mine found in 1896, lies roughly about "10 miles east of Maghagha, and about the same distance south of the mines opposite El Fent."



VIEW OF WORKINGS IN THE LEDGE OF A CLIFF NEAR CAMP VI., 1896.

(From a Photograph by Mr. Seton-Karr.)

In the winters of 1896 and 1897 Mr. Seton-Karr camped at fifteen places in the Wady el Sheikh, as he has laid down in his sketch survey, reproduced on a reduced scale on the map facing page 77, where the sites of the mines which he explored from these camps are also indicated. It will be seen from the numerous workings how extensively the ancient Egyptians quarried for flint in this one Wady; the majority of the excavations are situated on its right bank, and generally on the lowest and middle plateaux, which here rise in three tiers from the dry, sandy bed of the stream. Each excavation or mine was also the site of the workshop of the skilled artificer in flint or limestone, as it naturally would be, so that he might be near the newly-extracted material, and be saved the trouble and cost of carrying it elsewhere till the work was at least rough hewn.* A view of these plateaux is given on page 81. The workings were situated either along ledges in the face of the cliffs as seen in the view on the preceding page, or were shafts sunk in the level ground on the terrace-"treads," of which two excellent views are given, from photographs taken by Mr. Seton-Karr, reproduced on this and on the following page (pp. 102, 103).



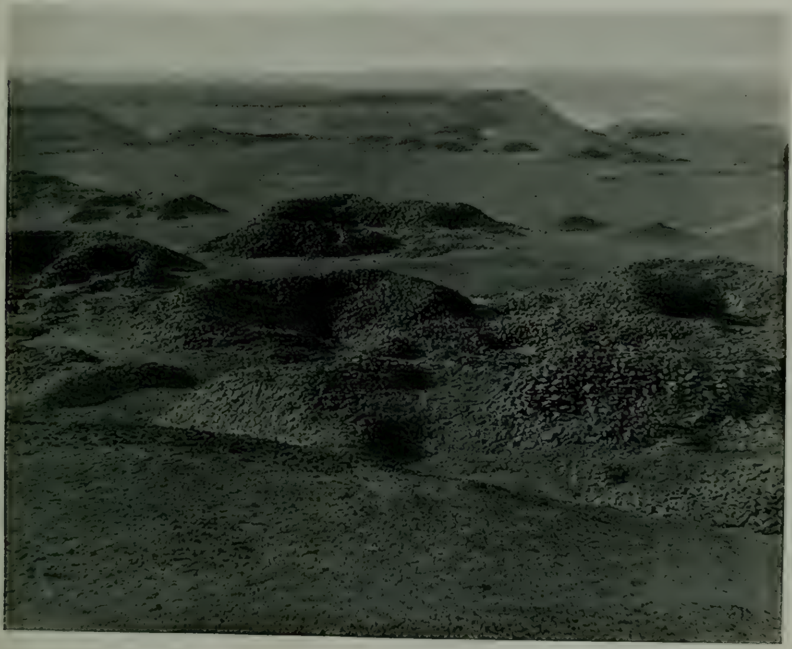
VIEW OF SHAFTS ON THE LEVEL TERRACE-TABLELAND, NEAR CAMP XI., 1896.
(From a Photograph by Mr. Seton-Karr.)

On these plateaux as on one near Camp XI., 1896, shafts about two feet in diameter were met with, in many places filled up with drifted sand, and surrounded by masses of excavated material neatly arranged round them, as shown in the two illustrations on page 104. Their depth does not seem to have been great, nor do the flint-workers appear to have driven lateral galleries from the shafts. Most of the mines had a central work-place, round which the excavated material was heaped, and where most of the implements were found.

---

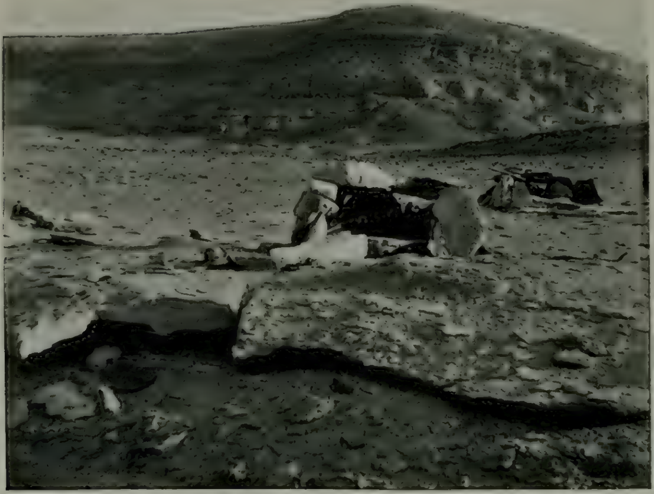
* "We have already seen that the gun-flint knappers of the present day are said to work most successfully on blocks of flint recently extracted, and those, too, from a particular layer in the chalk, and it seems probable that the ancient flint-workers were also acquainted with the advantages of using the flints fresh from the quarry, and worked them into shape at the pits from which they were dug, not only on account of the saving in transport of the partly-manufactured articles, but on account of the greater facility of working the freshly-extracted flints. This working the flints upon the spot is conclusively shown by the examination of the old flint quarry at Cissbury, Sussex, by General Pitt-Rivers, then Colonel A. Lane-Fox, and others."—(Sir John Evans in *Ancient Stone Implements,* p. 32.)

Examples of the whole of the different forms of implements above described were not found in every mine. Round all those lying to the east and south-east of Mr. Seton-Karr's collecting Camp II. of 1896—which is between 30 and 40 miles east of the Nile—(see the map facing page 77) there were found only rough flakes with a cutting edge and very rude cores, in association with hammer stones of rude and shapeless lumps of flint. In descending the Wady, at the next halting-place, Camp I. of 1896, near a mine on the right bank, there were found more shapely wedge or shoe-like cores (as in Fig. 42), surrounded by fine flakes and in company with clod-breakers or "truncheons," which, in being without handle or knob, I take to be in an unfinished state. Lower down, at Camp. III. of 1896, occurred at workings on the right bank only, both rough and fine flakes in large numbers, "truncheons," knobbed (Fig. 37) and unknobbed, also sickle-shaped knives (Figs. 21, 22, 25, and 29) and broad, thin double-pointed, leaf-shaped daggers

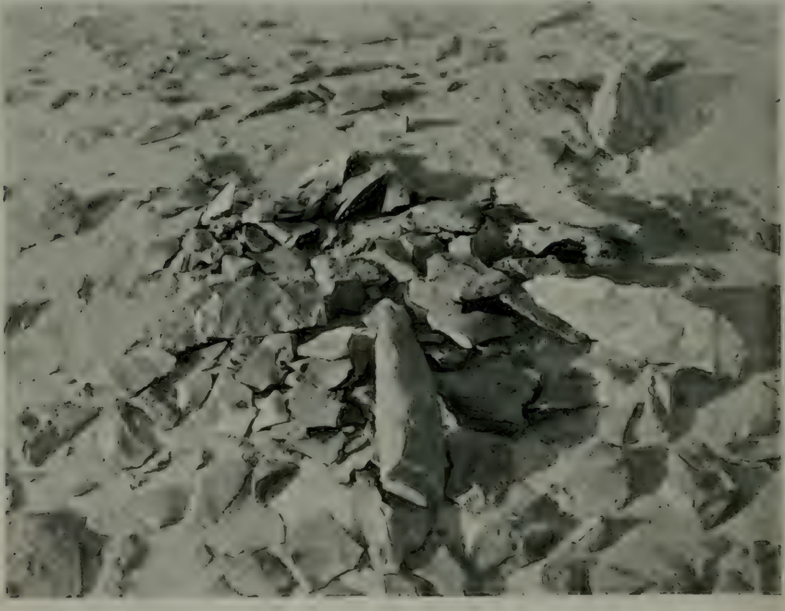


View of Shafts on the Level Terrace-Tableland, near Camp XI., 1896; Showing the Excavated Material Heaped Round the Central Work-Place.

(From a Photograph by Mr. Seton-Karr.)



View of Shafts on One of the Plateaux near Camp XI., 1896; Showing Raised Material Piled up Round.
(From a Photograph by Mr. Seton-Karr.)



View of Shaft with Raised and Partly-Worked Material Piled Round It.
(From a Photograph by Mr. Seton-Karr.)

(Figs. 23 and 24). Proceeding further along the Wady, the next Camp is VI. of 1896, whence mines were visited on both banks. On the right bank the excavations occur on the level ground of the lower and middle plateaux, and also along the face of the cliff rising to the highest tableland. Along this cliff-face, but not elsewhere here, knobbed clod-breakers occurred, along with broken armlets and the flat disks out of which they were made (Figs. 1 to 8). On the left bank were workings which Mr. Seton-Karr believes to be of greater age than those on the right bank, but they contained no implements. A short distance further along, near the Camps XII. of 1897 and V. of 1896, extensive workings had been made on the right bank, as excavations on the "treads" and in the "risers" of the lower and middle plateaux, as well as numerous circular shafts now partly filled up with sand. These sites yielded broken armlets and thin disks (Figs. 1 to 8), thin double-pointed leaf-shaped knives (Figs. 23 and 24), and knobbed clod-breakers or "truncheons" (Fig. 37). Proceeding about five miles further down the gully, past a high cliff where the three eastern plateaux meet in one face, Camp XI. of 1897 is reached, where the right bank is again seen cut into wide, well-marked, step-like terraces, on whose lower and middle tiers have been made numerous excavations, round which were obtained many rude flakes, knobbed "truncheons," and armlet disks. Some five or six miles still further down, following the bed of the stream, another collecting station (Mr. Seton-Karr's Camps XIV. and X. of 1897) yielded from the mines, on the left bank, leaf-shaped flints (Figs. 18 and 19), large axe-like or spear-headed implements (Figs. 9 to 15), unknobbed "truncheons," and scrapers of "palæolithic" forms (Fig. 47). A mile or two still nearer the Nile there commences a long chain of workings in the lower plateau of the right bank, both on the flat and on the face of the cliff rising to the middle terrace. The four collecting stations (IV. of 1896, IX. of 1897, VII. and VIII. of 1896), which were established in the eight miles or so along which the workings here extend, yielded unknobbed "truncheons" or clod-breakers; broad-bladed axe-like implements (Figs. 9-15), and a few knives. Near his Camp XV. of 1897, situated on the mud-plain of the Nile, close to the entrance to the Wady el Sheikh, Mr. Seton-Karr discovered (in workings which he believed to be more ancient than those a few miles higher up just described), the scarce round hammer-stones of which two examples are represented on page 93 (Figs. 39 and 40).

The questions now arise—What is the age of these implements from the Wady el Sheikh and Wady Sojoor, and how long probably were the mines worked?

Large numbers of stone implements—exclusive of those from tombs, temples, and sites of habitation—have been discovered in various parts of the Nile Valley and the adjacent deserts, the majority of them rude, ovoid, lance- or tongue-shaped implements, flints of undefinable use, and flakes. They have been picked up (with hardly an exception) on the surface of the ground, and have been much discussed and been variously assigned by some to the palæolithic age, by others to the neolithic or the historic periods. So it is still a question requiring investigation and demanding settlement which of the stone ages these implements belong to. No find of implements so extensive as the one which is the subject of this paper has ever been made in Egypt, nor had any previously been found in relation to the mines which supplied the material, or to the workshops in which they were fabricated. A study of this collection, therefore, may perhaps contribute some new facts towards the settlement of this interesting question.

The vast chronology of prehistoric man—it may be useful to recall—is reckoned by the ages during which, as he advanced in civilisation, he employed the different materials stone, bronze, and iron to make his more imperishable tools and weapons out of. The earliest of these, the age during which man used stone implements, presents two epochs—an older (Palæolithic) and a newer (Neolithic) period.

The characters of the palæolithic implements are nodules of flint (chiefly), or quartzite rudely chipped into invariably unpolished scrapers, tongue-shaped instruments, hammers, and other tools. They are glossy of surface, smooth-edged, and patinated by the weather or chemical changes in the beds where they have reposed. They have been preserved to our day by being, without exception, buried under the (often stalagmitic) floors of the caves in which their makers sheltered, dwelt, or worked; or under the mud accumulated over their workshops by lake-inundations; or beneath the drift gravels left in the course of fresh water streams into which their handiwork had been washed by floods. In association with these implements are found the remains of animals which have for ages been extinct or have long vanished from their former haunts. The sites in which they are found in England indicate that they were deposited at a time when our island was still united to a larger Ireland, and was undissevered by the North Sea and the English Channel from the Continent of Europe, and when the latter was united to Northern Africa—a period distant from ours estimated by some geologists at tens, and by others at hundreds, of thousands of years.

The implements of the neolithic time show a great advance in the science and art of the fabrication of flint. Many of them are highly artistic in form, being beautifully worked and often finished to a rich polish. They are nearly always found on the surface of the ground on the floors of the undisturbed caves which the man of the period occupied, and in the kitchen middens in front of them; or in the refuse heaps accumulated under the pile dwellings he occupied on the margin of lakes, or in graves entombed beside his bones. If found buried, however, they are always in beds which indicate that in the time of these inhabitants the country presented practically the same topographical features, and contained the same fauna that it does to-day.

In Europe neolithic man lived in the present, and palæolithic man in the previous, or Pleistocene, geological period.

The existence of flint mines and workshops in the eastern desert of Egypt—if known to the Bedawin—has been buried in oblivion so far as any Egyptian traveller, explorer, or archæologist is concerned, since the ancient date, when they were, perhaps precipitately, deserted by the quarrymen and artificers, till they were re-discovered by Mr Seton-Karr.* There exists, therefore, so far as I have been able to gather, neither legend nor tradition in regard to them. We have, consequently, no help in this direction as to the age of the implements or the mines.

The shade of discolouration, or the patina, and the amount of wear which the surface of the flint exhibits, are among the criteria which archæologists appeal to in estimating the age of stone implements. "The safest and, indeed, the most common indication," says Sir John Evans, "of an implement being really genuine is the alteration in the structure of the flints . . and the discolouration it has undergone."

---

* Mr. Greg, in a paper in the *Journal of the Anthropological Institute*, in 1881, mentions the great abundance of flakes of flint over an extent of some miles on the tableland on the east side of the Nile opposite Feshn. It is remarkable that no one in the intervening fifteen years should have visited the adjoining Wady, or recorded occurrence of implements which apparently abound in such large numbers there. I have it from Mr. Seton-Karr that Johnson Pasha seems to have observed some of the mines in passing across this very region many years ago, as well as to have picked up on the ground a few implements, now all lost, with the exception of one which has been figured by Mr. Seton-Karr in the *Journal of the Anthropological Institute*, vol. xxvii. pl. x. fig. 2; but that he gave the excavations no careful examination, as he was led to believe that the workings had been made by Arabs in search of gold.

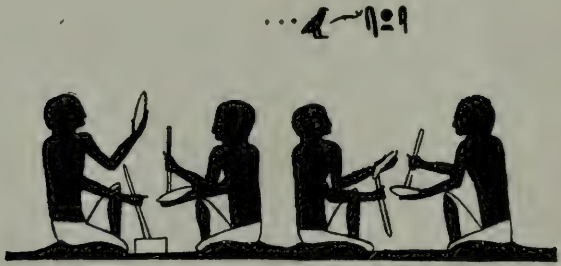
Now, as already mentioned, a large proportion of the flint implements found at the mines are discarded specimens broken in half in the chipping. In many cases the two portions, in falling to the ground from the maker's hands, dropped the one part with the up-turned surface the reverse of that of its fellow, with the result that when the pieces are re-united the surfaces of the completed implement have each a moiety dark, the effect of sunlight and weathering, and a moiety, in striking contrast, of nearly the original yellowish white, or yellowish grey colour of the chert. The exposure in many instances has been sufficiently prolonged for the skyward side of the stone to attain a deep dark brown, almost black, colour. The history of not a few of these flints, as read from its imprint on the opposite faces of the two halves (unfortunately scarcely perceptible in the figures), is most interesting. An implement may have the surface of one of its halves almost black from incessant protracted exposure, while its lower aspect is almost white from lying protected in the sand undisturbed ; the other half, after reposing with one face upon the desert surface for about half the time that its fellow had, seems to have been by some accident turned down-face up to lie baking in sun, wind, and rain for an equally long period, for both of its faces are about equally tanned, to about one-half the tint of the black surface of the other portion of the implement. Another implement, after the unlucky blow that broke it in two, was fated to lie with the surface of one of its halves exposed till it acquired a brown-black patina, when it was by some agency reversed and lay with its lower aspect skyward sufficiently long to attain a deep reddish brown tint, which is but a discolouration in comparison with the hue of its darker face. The upward face of the other half of the same tool seems to have reposed amid the unbroken stillness of the desert, with a narrow flake athwart it till the weather had stencilled its form across the bronzing surface of the flint. After that uncomputable period, the flake was displaced, mayhap by the foot of a human wanderer or the fleeting hoofs of an ibex or a gazelle, without disturbing the upturned surface of the fragment, whose continued exposure to the elements more deeply bronzed the flint without entirely obliterating the stencilled streak across it. Then what had during these quiet years been the nether side was by some accident at last upturned to the sun, beneath which it was baked to a deep bronze, then finally buried in the protecting sand till the day it was carried away from the desert ; for neither of its surfaces has acquired anything like the depth of patination of the darkest face of the other half. Now, some gauge of the rate of this "æonic tinting" is given us by so great an authority as Professor Petrie: —" The old desert surfaces are stained dark brown by exposure during long ages, and this colour, varying from orange to black, is characteristic of all the flints of early age from this plateau. It is certain that only a faint tinge of brown is produced on flints that are at least 7000 years old under the like conditions ; and this may give a slight scale of the ages that have past since flint was worked here by palæolithic man." Tested by this standard, the bulk of the Seton-Karr collection must be many times 7000 years old.

The great majority of the specimens—even the deepest stained from the western desert—have their edges and the outlines of the flakings as sharp and unworn as the day they were made. A few, however, are deeply eroded by drifting sand, while others present, in addition to their discolouration, the soft glossy surface and rounded angles and edges—marks, in the opinion of archæological authorities, indicative of high antiquity—which characterise the water-worn flints from the drift-beds of Europe of palæolithic age. These implements are of the same material as the others from the Wady el Sheikh or Wady Sojoor mines, with nothing about them to point to their being of a different age or make from their associates in the same workshop.

The implements figured in the foregoing pages were all found on the surface of the desert lying, with the exception of Figs. 45 and 46, around the mines or workings whence was dug the flint out of which they have been fashioned. The rudeness of many of them is due not to primitive workmanship, but to their being half-made tools, discarded on their fracture. For closely associated with the most unfinished of them were found examples of such knowledge and precision in the art of flint-flaking as the knives delineated in Figs. 24, 26, and 28; and the perfect adaptation of eye and hand as the broken fragments of the bangle on page 82, Figs. 1 to 8 prove.

Dr. Petrie has figured a number of the flint tools found by him in Kahun, the town wherein dwelt the workmen who built at Illahun the pyramids and temples of Usertesen II., the fourth King of the XIIth dynasty, who reigned from 2684 to 2660 B.C. Now, as I have already pointed out, in describing in detail on a former page the implements brought by Mr. Seton-Karr, a great number of them are so close in material, form, and character to those figured from Kahun that there can be little doubt that both sets were made about the same centuries—indeed, some of the Kahun tools might have been taken from the workshops of the Wady el Sheikh, for many of them are hardly more finished than some of those left at the mines.

Moreover, in the inscriptions reproduced in *Beni Hasan*, vol. iii., pls. vii., viii., by Mr. Griffith of the Egypt Exploration Fund, we see in the hands of the butchers and skinning-men flint knives closely resembling those from the Wady el Sheikh (Fig. 28) and Wady Sojoor (Fig. 25), proving that knives were being made of this material for common use in the XIIth dynasty—a date far down in the historic period. By the kindness of the Committee of the Fund, I am able to reproduce on this and the following page a couple of scenes from two tombs at Beni Hasan, showing the flint workers busy in the making of flint knives, chipping them sometimes held in the hand, sometimes resting on an anvil.



MANUFACTURE OF FLINT KNIVES, FROM THE NORTH WALL OF THE MAIN CHAMBER IN TOMB 15, BENI HASAN.

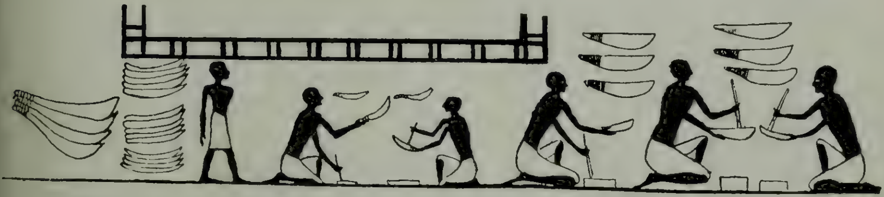
"The illustration shows the complete scene with the inscription *sekht sefu*, lit. 'striking knives,' or 'flints.' . . . It seems to have been the custom for the knife makers to work sitting on the ground, and frequently in groups of two. Besides the knives, they have only two instruments of their trade, an anvil and a fabricator" (Griffith, *Beni Hasan*, vol. iii., p. 34).

(By the courtesy of the Egypt Exploration Fund.)

M. de Morgan has thrown some doubt on the contemporaneity of the stone implements and the building of the Illahun pyramid, suggesting that

Usertesen's pyramid may have been built on the site of an old neolithic town. "It is incredible," replies Mr. Griffith, "that such specimens are really neolithic tools which were lying on the surface of the ground when the city of Kahun was built in the XIIth dynasty and were afterwards mixed up with the handiwork of the inhabitants. . . ." The axes found at Lisht, a town of the beginning of the XIIth dynasty, are identical, Mr. Griffith also points out, with those from Kahun. It is not, however, disputed, I believe, that the views and inscriptions on the walls at Beni Hasan picture for us what was actually to be witnessed at the period of their inscribing in the XIIth dynasty.

Mr. Quibell, in *Naqada and Ballas*, page 50, records how he cleared a small town ("South Town"), a settlement of a people, once but no longer, called the "New Race,"* whom Professor Petrie believes to be of Libyan origin, and to be related to the Kabyles and Berbers living to-day in Algeria, who occupied Egypt in predynastic times, that is, anterior to 4700 B.C.; how while in the houses of this town occurred pieces of almost "every variety of pottery we know from the New [predynastic] Race graves," he found strewing over the sites large numbers of flints—rough, ovoid, and rudely chipped—so different from the wrought flints on the graves of the same race as to suggest that they could not be of the same age and people, yet he concludes that "these ovoid flints were the common domestic implements of the New [predynastic] Race." . . . Besides these and a scraper, which, though smaller, is very similar in shape to Fig. 47 on page 96 from the Wady Sojoor, "many saw-flints were found from sickles, showing that the New [predynastic] Race reaped with flint sickles, as did the Egyptians [at a later period]." Now in the graves of the *same people* the wrought flints . . . "are the finest examples of such work that are known from any country or age. The regular and systematic surface flaking and the notching of the edges are of the most delicate style, surpassing even the Danish art of flint-work."



MANUFACTURE OF FLINT KNIVES, FROM THE WEST WALL OF THE MAIN CHAMBER, TOMB 2, BENI HASAN.

"The chipping is all done in a downward direction. Two of the workmen are holding up their knives to test the accuracy of their work. . . . It is clear the fabricators were tipped with some material different from that of the shafts. . . . Possibly they consisted of flint flakes set in wooden handles." Many of the finished knives "are provided with handles formed by binding round the butt end of the knife with cord (?) worked into a little knob at the end" (Griffith, *Beni Hasan*, vol. iii., p. 35).

(By the courtesy of the Egypt Exploration Fund.)

---

*M. de Morgan . . . a démontre avec beaucoup de probabilities que la race découverte par le savant anglais n'etait en realité que la plus ancienne de l'Egypte. Elle representait une sorte de sauvageon sur laquelle se greffa la civilisation soumerique de l'ancienne Babylonia. (*Schweinfurth.*)

The next examples of manufactured flint—many of them very similar to these ovoid types and to gun flints, or modern "strike-a-lights"—to which a date can be assigned, have been found at Medum, whose tombs and pyramids belong to the IVth dynasty, about 3900 B.C. Here, where are found the earliest forms of hieroglyphics,* is pictured the cutting up of fish with flint knives of forms, according to Professor Petrie, similar to that of Fig. 30—which is a spoiled rough-hewn specimen. In association with the flint, it may be mentioned in passing, bronze objects have been found at Medum made of copper containing 9·1 per cent. of tin.

If, therefore, the tools found at Kahun are really contemporary with Kahun, we have a date—the XIIth dynasty, about 4500 years ago—at which the Wady el Sheikh and Wady Sojoor mines were being worked, and consequently a scale by which we may gauge the depth of patination that can be acquired by exposure under certain conditions during that period. If our implement, Fig. 30, a form typical, according to Petrie, of the IVth dynasty, belongs to that date, then perhaps the quarries were being worked from 3900 B.C. onwards, though in my own opinion the patination and general facies of the implements rather bespeak their being all about equal age, and that only the shape may have persisted. The depth of tint of discolouration and the character of the stain would seem to vary very much, however, with the quality or constitution of the flint, and the nature of the surface on which it lay exposed. Some of the knives, the armlet fragments, and many of the flakes are apparently quite unchanged, or darkened slightly, there being at least no patination removable by concentrated hydrochloric acid, which, generally, quite removes the (in most cases apparently) ferric oxide stain. On the other hand, the patina —rich warm brown in colour—on some of the implements from the Theban plateau on the western desert, stubbornly resists the action of this acid. Of the knives and (?) hoes most similar to those from Kahun (and therefore more certainly of XIIth dynasty age), all equally exposed, some are deeply patinated, and others hardly at all. The patina on the knife Fig. 28, page 90, resembles a thin blackish brown wash, which turns inky-black on the application of nitric and hydrochloric acids. In specimens in the Museum from graves of the predynastic Race—6700 years old—the discolouration is imperceptible, and no effect is produced by strong hydrochloric acid. They have, however, been in graves, and are, moreover, of a very different sort of flint, quite unlike any that is found apparently in the mines in the two wadys from which comes the collection I have been describing in this paper. The patination of the latter flints, in many specimens of which there is much magnesium and calcium carbonate, varies from the natural greyish white through reddish yellow to black according to the length of exposure.†

The patina would, therefore, appear to be a very uncertain criterion of the age of a flint implement. The scraper, Fig. 47, page 96, from the Wady Sojoor, made of the same flint as the majority of the axe-like (?) hoes, has its less exposed surface only slightly discoloured, while its upper surface is not only stained almost black, while retaining the sharpness of its flake edges, but it has acquired the glossy polish which, according to Sir John Evans, is so characteristic of implements of palæolithic age. Yet it is undoubtedly part and parcel of the other implements which I have assigned to the XIIth dynasty. But for its associates it would undoubtedly be classed as palæolithic. Hardly to be distinguished from this scraper by patina and general appearance are the two implements—one also evidently a scraper—Fig. 45, page 95, and Fig. 46, page 96—which were found by Mr. Seton-Karr on the surface of the high plateau of Thebes on the western bank of the Nile. Both present the rich soft, glossy surface, and the deep reddish-brown patination (here with difficulty soluble in strong hydrochloric acid), as well as the form and wear which ought to characterise a true palæolithic flint. The flint of which they are made is the same as that of the Wady el Sheikh implements. Gathered on the same western plateau are in the Museum large numbers of rough-butted, sharply pear-shaped, flints, with the same deep patination and glossy surface as Fig. 46, and the same "palæolithic" facies. They are absolutely indistinguishable from a dozen others from the Wady el Sheikh mines near Mr. Seton-Karr's Camps XIV. and X., 1897. Others, identical almost in shape and characters, have been found by Professor F. Petrie and by Mr. Quibell on the surface of the high plateau at (among other places) Esna and Ballas. These are referred to by Mr. Griffith in the *Archæological Report of the Egypt Exploration Fund*, for 1896-7, page 48, in the following extract:—"Egypt," he says, "as we know it, came into existence in the pleistocene epoch, and then began the alluvial deposit to which the richness of the soil is due. But before the formation of the Nile Valley palæolithic man was on the ground, and he has left us, both on the surface of the desert and among the gravels, records of his presence in well-formed axes of flint of the same type that are met with in England, and as far north as Yorkshire, in France, in Germany, and even in India and South Africa." Professor Petrie and Mr. Quibell observe also, in their *Naqada and Ballas*, p. 49:—"The valley of the Nile is cut down a depth of 1400 feet through a limestone plateau, the edges of which are deeply channelled with drainage valleys. . . . On the top of the 1400 feet plateau are great numbers of worked flints of palæolithic type. . . . That the high plateau was the home of man in palæolithic times is shown by the worked flints lying scattered around the centres where they were actually worked. The Nile, being far higher then, left no mud flats as at present for habitation; and the rainfall—as shown by the valley erosion and waterfalls—must have caused an abundant vegetation on the plateau where man would live and hunt his game." The authors figure (pl. lxviii., lxix., and lxxvi.), a series of these flints, and many of them are hardly to be distinguished from those collected by Mr. Seton-Karr on the Theban plateau and in the Wady el Sheikh mines. They are rough-butted, pointed, spear-shaped (?) hammers, nondescript flints, or scrapers, roughly flaked round the margins, many of them also almost indistinguishable from the "ovoid flints, the domestic implements" of the pre-dynastic Libyan "New Race" (*cf.* op. cit. pls. lxxi. *et seqq.*). In addition, a further series of flints is figured on Plate lxxv. of the same volume, obtained by Mr. Quibell in the Ballas desert at the 900 feet level above the Nile plain. There are few, if any, characters by which they can be picked out from among those from Naqada. Along with these Ballas desert flints, "there were," Mr. Quibell adds, "some rounded flints, all stained dark brown; it is from such that these worked flints have been formed, and the chips of working were scattered around."

---

* The earliest Egyptian script occurs in the period of the first three dynasties, and this, and not that of the IV. dynasty, ought surely to constitute the beginning at least, though not so recognised, of the historic period in Egypt.

† The palæolithic flakes found by Mr. Spurrell in the mid-pleistocene river deposit at Crayford, Kent, are, as Prof. Boyd-Dawkins informs me, unaltered, while those found by himself at Wookey Hole in a Hyæna Den were altered to the centre.

Now, Mr. Quibell and Professor Petrie's explorations seem to prove that the rough and rudely-chipped "ovoid flints," "the common domestic implements of the New Race" (which, as pointed out above, are hardly distinguishable from the "palæolithic types" of the Ballas desert), are coeval with "the finest examples of such work . . . known from any country or age." The super-excellence of these people, therefore, in the manufacture of flint and of vases of stone and pottery, was not incompatible with their making and using implements, palæolithic in form, of the rudest and poorest kind.

It will be observed that the flints of "palæolithic type" found by Professor Petrie on the Nile plateaux were, as he tells us, lying "*scattered around the centres where they were actually worked*"; while Mr. Quibell's discoveries on the surface of the Ballas desert were in association, not only with the rounded flint nodules from which the implements were made, but along with "*the chips of working.*"

I believe it is the fact that very few true palæolithic implements in Europe have been found on the surface unless quite recently washed out of beds, portions, at all events, of which are still existent. It seems an extraordinary circumstance, and to me impossible to credit, that the nodules, the flakes, and the implements should, notwithstanding the enormous rainfall predicated by Dr. Petrie, which ploughed out the side valleys opening on the Nile, be found lying, *even in a solitary instance*, in undisturbed association at the present day, while the forests which sprang from the abundant moisture, and under whose shade the palæolithic workers lived and hunted before the formation of the Nile Valley, and before the separation of Europe from North Africa, along with the accumulated soil in which the rich vegetation grew, have all been entirely washed away.

That we possess implements of unmistakable "palæolithic type" which if without history would be classed as palæolithic unhesitatingly, but which are incalculably younger, is a well-known fact. The flint implements from Abu Shahrein, in Southern Babylonia, is an instance in point. They were discovered in different parts of these extensive ruins on and amid the *debris* of the city, in association with terra cotta objects and a number of flakes intended for use as knives, *together with the nodule of flint from which they had been struck*—undoubted proof that they were made on the spot, and cannot be of greater age than the ruins themselves.

The same "true palæolithic form" is apparent in the implements, resembling, except in material, those from the high plateaux of the Nile, found by Mr. Seton-Karr scattered over the surface of the country in Somaliland in the years 1893-96, of which a representative set has been added to the Mayer Collection. Dr. Gregory, of the British Museum, has been kind enough to examine for me the material of which they are made. He reports that some are of limestone, either of Upper Cretaceous or of Eocene age; others—and these the more numerous—of coarse, gritty quartzite, "probably belonging to the series of grit sandstones below the neocomian limestones and above the archæan series; though he has seen no rock from Somaliland exactly like it"; while others are of chert, in some cases of a flint-like variety, whitened by exposure, from the Eocene series.

The first collection made in 1893-4 by Mr. Seton-Karr was described by him at the British Association meeting at Ipswich. The implements were "flint chipped spear-heads, knives, and scrapers," or, as Sir John Evans has described them, "broad flat flakes trimmed along the edges so as to be of 'le moustier type' of M. Gabriel de Mortillet." In 1894-5 he obtained several thousand more specimens . . . but "of this large number, however, only about 100 are really symmetrically chipped as spear-heads." "I also gathered," he says, "a number of cores, chips and flakes, knives and scrapers. The places where they abound in the district alluded to were invariably of one character. In the first place, the district was distinguished by the presence of flint nodules upon the surface, so that these ancient peoples, with whom this place was apparently a manufactory, had the materials ready to their hands.

"I observed that they were more numerous as one approached a well or the river beds in which wells were dug. . . . The implements were most numerous in the vicinity of the central watercourse. The ground had always a very gentle fall, so that the heavy showers which constitute the rainfall in Somaliland would wash away the sandy soil, and yet keep the stones lying free and clean upon the surface, in which position they were always found. Also, there were generally no other stones upon the surface besides those worked flints." The implements were found "covering the ground sometimes for the space of half an acre. . . . Sometimes I *found an unfinished spear-head on the ground surrounded by a mass of flakes and chips, as though the people had dropped their work, and, carrying with them all their perfect weapons and belongings, had fled never to return.*" (The italics are the present writer's.)

In 1895-96 Mr. Seton-Karr again visited Somaliland, and "secured many hundreds of palæoliths, ranging up to 9 inches in length, during a journey of 19 days, in about 8° N. Lat., and 1000—2000 feet above Red Sea level. They are sometimes eroded even to a depth of $\frac{1}{10}$ inch." Sir John Evans has described this collection in a paper before the Royal Society of London (Proc. R.S. IX., 1896, p. 19) as "in form absolutely identical with some from the valley of the Somme and other places."

There are many points left in serious doubt, it appears to me, as to the real conditions under which these implements were found, which should be known before it is possible to pronounce them the handiwork of man in the palæolithic age of Europe. Their discoverer distinctly states that there were only flint nodules on the ground, while the material of many of the implements is quartzite and limestone. A coating of limestone upon them proves that they were lying on a surface where they had been in contact with lime in solution. The remarkable circumstance of these implements being "scattered all over the country," "covering the ground sometimes for the space of half an acre" where no remains apparently exist (so far as the published accounts tell us), of the deposits out of which they have been washed (if they ever were embedded*), seems difficult to reconcile with the usual process of aerial denudation acting through the enormous period which has elapsed since the palæolithic age of Europe, with which Sir John Evans clearly considers them to be contemporaneous, when he says that "this discovery tends to prove the unity of race between the inhabitants of Asia, Africa, and Europe in palæolithic times."

Mr. Seton-Karr's further statement that he sometimes found spear-heads "on the ground, surrounded by a mass of flakes and chips, as though the people had dropped their work . . . and fled . . ." is very suggestive and important. One such occurrence is almost sufficient in itself, I venture to think, to disprove the high antiquity claimed by Sir John Evans for these implements; for if they were ever embedded, it can hardly seriously be asserted that a nodule of stone surrounded by the flakes chipped from it tens or hundreds of thousands of years ago, could have remained undisturbed when the deposits by which it was covered have entirely disappeared. Even if these flints could have lain on the ground since man in the palæolithic age chipped them, can we bring ourselves to credit that during that immense period the ordinary effects of rain, wind, and the tramping across the country of great herds of animals would not have dispersed them? The appearance of these Somaliland tools—those at least possessed by this Museum—would certainly, apart from their "palæolithic form," never lead anyone to ascribe any great antiquity to them. The edges of the implements and the margins of the flakes are as sharp as possible, and there is not the slightest indication of the action of weather or water upon them. The figures given in the *Journal of the Anthropological Institute* (vol. xxvii., pls. ix., x., 1897) in illustration of Mr. Seton-Karr's remarks when exhibiting them before that Society are somewhat misleading, in that, by having been reproduced from sepia sketches, they suggest implements much rounded and worn, which in reality they are not. If these works must be ascribed to palæolithic man, then the Palæolithic Age in Northern Africa was far later than that so designated in Europe; which would make it impossible to predicate "unity of race" or "close contact" between the two peoples.

---

* Sir John Evans, in his paper to the Royal Society, says "they seem to have been washed out of sandy or loamy deposits by the action of rain, or sometimes to have been laid bare by the wind."

The great interest of the discovery of these implements consists, in the opinion of Sir John Evans, "in the identity in form of the implements with those found in the pleistocene deposits of north-western Europe and elsewhere. Any one comparing the implements from such widely-separated localities, one with the other, must feel that if they have not been actually made by the same race of men, there must have been some contact of the closest kind between the races who manufactured implements of such identical forms." If such reasoning may be accepted, we must also infer "a contact of the closest kind" between the New Race workers of Egypt and the American fabricators of the two beautifully flaked and formed implements figured in the *Annual Report of the Smithsonian Institution*, 1896, p. 432, from Naples, Illinois (No. 43,133, in the National Museum), which have the very same form as implements figured by Professor Petrie, and are almost, but not quite, as fine examples of the flaker's art; as well as between the XIIth dynasty artificers, who made the specimens from the Wady el Sheikh and from Naqada, and those who manufactured the almost similar specimens from Columbia County, Georgia (No. 172,559, United States National Museum), figured in the same volume, p. 430; and equally that the ancient Maoris and the early American Indians were in "contact of the closest kind" since it would be impossible for the greatest expert in Maori art to distinguish between the true Maori 'meri' and similar implements discovered in America, and figured in the same volume of the *Smithsonian Report*. Is it not more likely that flint, quartzite and jade in their working lend themselves better to certain forms than others, and that all workers in these materials in different ages and regions have independently found out the forms for similar uses best suited to the material common to them? The most finished stone implement, too, it should be remembered, must also pass from the primitive up to the more perfect stage, and that many of the ruder forms of implements assigned to palæolithic man are but "wasters" from the workshop of perhaps a master in the art of stone manufacture of a much later age.

To sum up these remarks:—I have described with some minuteness the implements with the localities where they were found in the Wady el Sheikh, because of the magnitude of the collection and the conditions under which it was discovered. I have, by comparing these flints with others dated by Professor Petrie's labours, indicated the age to which they probably belong as the XIIth dynasty, going back perhaps, but not probably, to the IVth dynasty, but also with great likelihood coming down to a much more recent date, as the views of the present condition of the shafts on p. 104 suggest. I have shown that various depths of "æonic tinting" (even to the deepest "palæolithic" patina) and a soft, polished surface (both of which are characters long depended on as sure marks of flints of high antiquity) have been acquired far within the historic period; that implements which would unhesitatingly be classed as palæolithic from their form, patina, and surface condition, occur in association in the same workings with those I have assigned to the XIIth dynasty; but I can find no reason for referring them to a higher antiquity; that many of the so-called "palæolithic" finds by

Petrie and Quibell on the desert surface are, just like the Abu Shahrein flints, not to be distinguished from many of those in this Museum found by Seton-Karr on the surface of the Theban plateau, and in the Wady el Sheikh mines; and that as many of the plateau implements have been found in close association with nodules and the flakes struck from them, it seems impossible to believe that these could remain (even in a single instance) undisturbed from the palæolithic days of Europe to the present time, when the forest under which they were made, and the forest soil on which they reposed have been entirely carried away. This reasoning applied to the Somaliland implements shows that they must be of an age much more recent than palæolithic, and probably even comparatively recent.

The conclusions it seems to me, legitimate to draw from a study of the collection here described, are that rude and palæolithic forms, amount and depth of patina, and surface condition are characters which cannot be depended on to fix the date of stone implements when there is no possibility of determining the geological age of the strata whence they have come, and in the absence of associated faunistic remains. Also, that the similarity, and even identity, of form in the stone implements of two widely separated localities are of themselves insufficient evidence of contact between the races who made them. And, likewise, that none of the surface "palæolithic" implements from Egypt and Somaliland have yet been clearly proved to belong to that period, while the probability is that the bulk of them are of much later date.

The only flint implements from Egypt known to me to have yet been found embedded undoubtedly in position, were discovered by General Pitt-Rivers in the stratified, indurated, gravelly *debris* at the mouth of a wady — the Babel Molook—near the Tombs of the Kings, which all geologists who know the spot, agree must have been deposited far back in pre-historic times. Doubt has been thrown, however, by a distinguished, but on this question supposed by some to be a somewhat biassed, geologist (the late Sir William Dawson) on the really artificial character of the flints. The General has, however, recently re-staked his great archæological reputation on their being truly human productions. The evidence of the palæolithic* age of man in Egypt would appear, therefore, to rest for the moment on the flakes and very rude scraper-like flints, found in the Babel Molook gravels.

Contributions to the Zoology of North Queensland.

By Herbert C. Robinson, M.B.O.U.

Trichoglossus novæ-hollandiæ, *subsp.* **septentrionalis,** *subsp. nov.*—Trichoglossus, *T. novæ-hollandiæ*, affinis, sed magnitudine parvâ, capite et plagâ abdominali læte azureis, nec purpurascentibus, facile distinguendus.

	Long. tot.	Al.	Caud.
Trichoglossus septentrionalis .	233-250	140-144	113-123 mm.
" *novæ-hollandiæ* . (5 specimens).	304-320	153-163	140-163 mm.

Habitat. North Queensland (Cooktown).

It seems curious that the marked difference in size between northern and southern specimens of *T. novæ-hollandiæ* should have been (as far as I am aware) overlooked.†

---

* These implements were originally described in 1881 in the *Journal of the Anthropological Institute* by General Pitt-Rivers as neolithic, but they were somewhat later referred by him to the palæolithic age.

† Since these notes were in type, Mr. Hartert has observed in his article *On the Birds of Cape York* (Novit. Zool., vi., p. 428, 1899) that specimens before him from that locality are smaller and brighter coloured.

Dr. Mivart's figure (Mon. Loriidæ, pl. xxxv. p. 109, 1898) has, in my opinion, been drawn from the above-described form.

Dacelo gigas *(Bodd.)*.—From the same locality as the above have been received three specimens of a *Dacelo*, marked as *males* by the collector, so differing from typical *D. gigas* in their smaller dimensions as to constitute in all probability a distinct race, as shown below:—

	Long. tot.	Al.	Caud.	Rostr. a rict.
Dacelo, sp. . . .	378-385	195-201	140-143	74-78 mm.
Dacelo gigas . . (8 specimens).	425-450	212-230	157-164	77-94 mm.

In addition, there is no blue whatever on the rump, or on the primaries and secondaries. At first sight, these specimens might be taken for the immature stage of *D. gigas*, but this I do not think is the case, as in one specimen, which has commenced its moult, the new primaries show no trace whatever of blue. Should the receipt of further specimens prove this to be the case, the subspecies might be known as *D. gigas*, subsp. *minor*.

Both this form and *D. leachii* breed at Cooktown.

On the range of ***Prionodura newtoniana****, De Vis*.—When first described, this Bower bird was supposed to be confined to the higher altitudes of the Bellenden-Ker ranges and the thick scrubs to the north of Cardwell and round Herberton. Recently it has been observed on Mt. Peter Botte, some 50 miles south of Cooktown (*cf.* Le Souef, *Victorian Naturalist*, March-April, 1897; Ibis, 1897, p. 619).

The Derby Museum has, a short time since, received a *male*, shot on 28th May, 1899, within the limits of the municipality of Cooktown. The collector, who has lived many years in the district, states that it is the first he has ever seen in this neighbourhood. Whether the species is really a native of the district, or whether the individual in question had been driven from its usual habitat by the great cyclone which raged a short time previously to its capture, remains to be proved.

On a New Species of *Aplonis*, in the Derby Museum, from Santa Cruz Island, in the Western Pacific.

By Henry O. Forbes, LL.D.

My friend, Dr. Bowdler Sharpe, recently requested me to submit to him the type of *Aplonis rufipennis* of Layard (*cf.* Ibis, 1881, p. 542), which is in the Tristram Collection in this Museum. This specimen was originally preserved in alcohol, and it was probably on that account that Canon Tristram believed the colour to be faded, and determined two specimens from Santa Cruz Island as identical with *A. rufipennis* from Efate Island in the New Hebrides. Dr. Sharpe, however, tells me that the typical specimen is not very much faded, and that it agrees with two others recently sent by Captain A. M. Farquhar from Ambrym and Espiritu Santo, and, further, that the Santa Cruz birds (Tristr. Coll. 18117 jr., 18118 ♀ Type) are different. I, therefore, propose to describe them as

Aplonis maxwellii, *n. sp.*

Aplonis similis *A. rufipennis*, sed grisescenti-brunneus, pileo saturate brunneo-striato; genis et corpore subtus schistaceis, minnime ochrascenti-fulvis, hypochondriis rufescentibus, subcaudalibus castaneis distinguenda. Long. tot., 7·5; culm., 0·95; alæ, 4·2; caudæ, 2·45; tarsi, 1·2.

I have much pleasure in dedicating this species to Mr. Maxwell Hyslop-Maxwell, Jr., the Chairman of the Museum Extension Committee of the City Council.

Catalogue of the Charadriomorphic Birds (Charadriformes): Auks (Alcidæ), Gulls (Laridæ), and Skuas (Stercorariidæ) — Lari; Lark-plovers (Thinocoridæ), Stone-curlews (Œdicnemidæ), Jaçanas (Jacanidæ), Sheathbills (Chionidæ), Crab-plovers (Dromadidæ), Coursers (Cursoriidæ), Plovers and Snipes (Charadriidæ)—Limicolæ; Pigeons (Columbæ), and Sand-grouse (Pterocles), in the Derby Museum.

(Concluded).

By Henry O. Forbes and Herbert C. Robinson.

Columbæ.

TRERONIDÆ.

TRERONINÆ.

SPHENOCERCUS, *G.R.Gr.*

apicicauda (*Hodgs.*). Two. ♂, ♀. Assam. Burmah (Karen Hills, January).

oxyurus (*Reinw.*). Three. ♂. Sumatra (Palembang Residency, Lake Ranau, Tandjong Djati). Java.

sphenurus (*Vig.*). Eleven. 8 ♂, 3 ♀. Northern India (Koteghur, June; Dehra Dhoon; Darjeeling).

T **korthalsi** (*Temm.*). Two. 2 ♀. Sumatra. Java.

No. 1, acquired by Lord Derby from Leadbeater in June, 1841, has on the label "*Columba korthalsii*, nova species, Sumatra," followed by a specific locality, which is illegible. The label is in the same handwriting as that on other specimens collected by S. Müller, in the Padang highlands at Batang Singalang, which were acquired at the same time. The specimen is, therefore, probably one of the Types.

The specimen from Java is a slightly larger bird, and is considerably paler in colour both above and below.

sieboldi (*Temm.*). Eight. 4 ♂, 4 ♀. Japan (Fuji, July; Yokohama, March; Shimotsuke-no-kumi; Nagasaki, January).

sororius, *Swinh.*

formosæ (*Swinh.*).

permagnus (*Stejn.*). One. ♀. Loo-choo Islands, January.

VINAGO, *Cuv.*

waalia (*Gm.*). Two. Northern Africa (White Nile; Abyssinia).

crassirostris (*Fras.*).

australis (*Linn.*). Three. ♀. Madagascar (Mohambo).

calva (*Temm.*). Fifteen. ♂, 2 ♀. West Africa (Gambia, Bathurst, June, July; Cape Coast Castle; Axim; Gaboon, Ogowé River).

Count Salvadori has remarked (Cat. Birds, Brit. Mus. xxi. p. 22, 1893) that the birds from Central Africa and Kilimanjaro are brighter in colour than those from the West Coast; the same may be said of specimens from the Gambia, as compared with others from Cape Coast Castle and Gaboon.

The brighter coloured bird has been named *Vinago salvadorii, subsp. nov.*, by Dr. Dubois (P.Z.S. 1897, p. 784); it is, however, considered synonymous with *V. nudirostris* (Swains), by Neumann (J.f.O., 1898, p. 294). It seems somewhat doubtful if the two forms can be regarded as even subspecifically distinct.

wakefieldi (*Sharpe*). Two. East Africa (Ribé; Pangani River, Usambara Mountains).

schalowi (*Rchnw.*). (= *Treron delalandi*, Bp., Tristr. Cat. Coll. Birds, p. 45, spms. *a*, *b*). Two. ♂, ♀. South Africa (Ovampoland, Ondonga, November).

delalandii (*Bp.*). Nine. 2 ♂, ♀. Central Africa (Nyassaland, Zomba, July). South Africa (Transvaal: Rustenberg, July, August, December; De Kaap, Barberton, September; Port Natal).

CROCOPUS, *Bp.*

phœnicopterus (*Lath.*). Seven. ♂. Northern India (Dehra Dhoon). Nepaul. Assam.

viridifrons (*Blyth*). Two. Burmah. Tenasserim.

chlorogaster (*Blyth*). Eight. 3 ♂, ♀. Northern India (Muddapur, November; Maunbhoom, March). Southern India (Masulipatam, March; Nellore; Madras). "Santhall Country (Godda)."

BUTRERON, *Bp.*

capellii (*Temm.*). Six. 2 ♂. Sumatra. Borneo (Baram; Banjermassim).

TRERON, *Vieill.*

T **nipalensis** (*Hodgs.*). (= *T. nasica*, Schleg. Tristr. Cat. Coll. Birds, p. 45). Three. 2 ♂, ♀. Malay Peninsula (Malacca). Sumatra. Borneo (Banjermassim).

No. 3, ♂, from Sumatra, presented to Lord Derby by Sir Stamford Raffles, is very probably the Type of *Columba curvirostris*, Raffles, Trans. Linn. Soc. xii. 2, p. 318 (1822).

nasica, *Schleg.*

OSMOTRERON, *Bp.*

griseicauda (*G.R.Gr.*). Five. 4 ♂, ♀. Sumatra. Java (Bantam Residency, Genteng, March).

wallacii, *Salvad.* (= *Treron griseicauda*, Gr., spms. *a*, *b*, *d*, Tristr. Cat. Coll. Birds, p. 45). Three. 3 ♂. North Celebes. Sula Islands.

wallacii, *subsp.* pallidior, *Hart. Nov. Zool.* iii. p. 178 (1896); *Meyer & Wiglesw. B. Celebes.* ii. p. 597 (1898); *Sharpe, New Hand-L. Birds*, i. p. 53 (1899).

. . . closely allied to *O. wallacei typica*, from Celebes, the *males* agreeing in the colour of the mantle with the *northern* specimens, and not with those from South Celebes and Saleyer, but being larger, with a stronger bill and a little longer wing, the head paler grey, the throat lighter and a little more washed with grey, the entire breast and abdomen of a paler green, the anal region more white, and the under tail-coverts slightly paler. The brownish orange spot in front of the shoulders is very much paler, and occupies a larger area. ♀ *ad.* :—"Iris orange; orbital skin vivid yellowish green; basal half of bill pale green, apical half ivory white with a faint green tinge; feet carmine; claws light grey. Wing of *males*, 157-161; tail, 95-98; tarsus, 20-22; bill from hind-end of nostrils to tip, 16-17; height from angle of mandible, 9 mm. *Female* same dimensions." (*Hartert*). *Habitat.* Djampea and Kalao.

sanghirensis (*Brügg.*). One. ♀. Great Sanghir Island, June.

phayrii, *Blyth.* Three. 2 ♂, ♀. India. Tenasserim (Tavoy, April).

malabarica (*Jerd.*). One. ♀. Southern India (Madras).

aromatica (*Gm.*).

axillaris (*G.R.Gr.*). Five. 3 ♂, 2 ♀. Philippine Islands (Luzon, Cataguan; Mindanao, Surigao, May; Cebu, April).

everetti, *Rothsch. Nov. Zool.* i. p. 41 (1894).

"*O. everetti* resembles *O. axillaris* from the Philippines, but is altogether a larger bird; the purplish chestnut mantle is bordered above by a very conspicuous interscapulary band of lavender-grey, of the same colour as the crown; this colour is of a lighter shade than in *O. axillaris*, and the interscapulary band is much less distinct and not so pure grey in the latter.

"In *O. everetti*, the green of the neck and breast is a shade lighter and more tinged with yellow, the abdomen paler and more greyish along the middle.

"I have no female of true *O. axillaris* to compare, but the female of *O. everetti* seems to be larger, and the mantle much darker olive.

"Total length of my *O. everetti* is about 11 inches; wing, 6·35 to 6·5 (♀ 6·4 to 6·5); tail, 3·6 to 3·65; bill, 0·75; tarsus, 0·9." (*Rothschild*).

"Iris greenish silvery" (*A. Everett*); "iris pearly green, bill red at base, blue at tip, feet pale slate" (*H. Guillemard*). *Habitat.* Sulu Archipelago (Sulu, Meimbun, Sibutu, and Bongao Islands).

Messrs. Bourns and Worcester, in their elaborate paper on the ornithology of the Philippine Islands (Proc. U.S. Nat. Mus. xx. p. 551), apparently do not recognise this species, as specimens from the Sulu Archipelago are listed under *O. axillaris*.

chloroptera (*Blyth*). Two. ♂, ♀. South Andaman Islands, March, April.

pompadora (*Gm.*). One. ♂. Ceylon.

fulvicollis (*Wagl.*). Two. Borneo.

fulvicollis, *subsp.* **baramensis** (*Meyer*) (= *Treron fulvicollis* (Wagl.). Tristr. Cat. Coll. Birds, p. 45). Three. 1 ♂. Borneo (Trusan, December; Mt. Mulu at 2000 ft., October).

One of these specimens is apparently not quite adult, and has green bases to the cinnamon feathers of the breast. All three, however, agree in lacking the ochre-yellow tinge on the breast, which is markedly present in our two specimens of *O. fulvicollis typicus*, which have on their labels "*Columba cinnamomea, n. sp.*", and were probably collected by S. Müller in Southern Borneo.

teysmanni (*Schleg.*). One. ♂. Sumba (Waingapo, December).

psittacea (*Temm.*). Two. 2 ♂. Timor, June, July.

Collected by S. Müller.

floris (*Wall.*). Two. ♂, ♀. Flores.

bicincta (*Jerd.*). Seven. 5 ♂, 2 ♀. Northern India (Muddapur). Southern India (Nellore). Tenasserim, March. Burmah.

vernans (*Linn.*). Fourteen. 10 ♂, 4 ♀. Malay Peninsula (Malacca; Singapore). Banka. Sumatra (Lampong Residency, Gunung Tetahan). Borneo (Kuching, September). Philippine Islands.

No. 6, ♂, from Sumatra, was presented to Lord Derby by Sir Stamford Raffles.

olax (*Temm.*). Twelve. 7 ♂, 4 ♀, pull. Malay Peninsula (Malacca). Sumatra (Lampong Residency, Kotta Djawa). Borneo (Labuan, February; Baram). Java.

PHABOTRERON, *Bp.*

amethystina, *Bp.* Two. Philippine Islands (Samar; South Luzon).

leucotis (*Temm.*). Five. ♂. Philippine Islands (Luzon, St. Michael, December).

brevirostris, *Tweedd.* One. ♂. Philippine Islands (Mindanao, Placer, July).

cinereiceps, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p. 89 (1894); *Grant, Ibis*, 1896, p. 563; *Bourns & Worces. Proc. U.S. Nat. Mus.* xx. pp. 551, 597, 606 (1898).

"Top of head, nape, and sides of neck clear ashy grey, slightly washed with rufous on forehead. Hind-neck amethystine, as in *P. amethystina.* Back, rump, and upper tail-coverts brown, with bronze reflections, the tail-coverts slightly more ruddy than back. Four outer pairs of tail feathers dark brown, lighter at base. Two central pairs ruddy brown, with bronze reflections. All the tail feathers with ashy tips, which form a distinct terminal band ¼ inch in width. Shafts of tail feathers black. Wing-coverts with secondaries uniform with back. Primaries dark brown, the first five sharply edged with rusty brown on outer web.

A narrow black stripe under eye. Sides of face, ear-coverts, fore-neck, and breast rich ruddy brown, the breast with slight metallic gloss. Chin and throat lighter. Abdomen and thighs fulvous brown. Flanks darker, with slight metallic wash. Under tail-coverts clear ashy grey. Shafts of tail feathers with basal half black, apical half white. Under surface of tail nearly black, the terminal grey band distinct and wider than on upper surface, measuring ·6 inch on outer pair of feathers. Under wing-coverts and axillaries like the flanks. Under surface of quills uniform dark brown. Bill black. Legs and feet dirty purplish. Nails black. Iris in one specimen bright yellow, in another orange red. Length, 10·25; culmen, 80; wing, 5·29; tail, 3·90; tarsus, ·70 inch." (*Bourns & Worcester*). *Habitat.* Sulu Archipelago (Tawi Tawi).

brunneiceps, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p. 9 (1894); *Grant, Ibis,* 1894, p. 563; *Bourns & Worces. Proc. U.S. Nat. Mus.* xx. pp. 551, 594, 595, 606 (1898).

"Above dark brown with greenish reflections. Amethystine spot on hind-neck less blue than *P. amethystina.* Top of head brown, the forehead slightly lighter and nape slightly darker than crown. Narrow dark brown streak under eye, sides of face and ear-coverts brown, paler than crown. Chin and throat greyish fulvous. Breast pearly ash. Abdomen, flanks, thighs, and under tail-coverts ochraceous brown. Under surface of tail brownish black, with broad grey terminal band. Under wing-coverts and axillaries fulvous brown. Primaries with sharply defined light edges on upper web. Below slightly more ashy. Tail feathers brown, with distinct terminal bands of grey. Central pair with slight metallic gloss. Shafts of quills black above and below, except the terminal half inch, which is white. Bill black. Feet dark pink. Nails brown. Iris orange red. Length, 10·33; culmen, ·94; wing, 5·21; tail, 3·50; tarsus, ·72 inch." (*Bourns & Worcester*). *Habitat.* Basilan.

maculipectus, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p. 10 (1894); *Grant, Ibis,* 1896, p. 563; *Bourns & Worces. Proc. U.S. Nat. Mus.* xx. pp. 551, 577, 579, 606, (1898); *Whitehead, Ibis,* 1899, p. 485.

"*Adult male*:—Upper surface exactly as in *P. amethystina*, except that the primaries are slightly darker. Dark brown stripe under eye, extending from gape through ear-coverts to hind-neck. Below this a white stripe, and a second shorter dark stripe below the latter. Cheeks fulvous brown. Chin and throat more ruddy brown. Breast clear ashy grey, each feather having an edging distinctly lighter than its centre, producing a beautiful mottled appearance. Feathers on centre of fore-breast washed with brown, and forming a distinct patch. Feathers of abdomen lack the dark centres, and their edges are washed with light brown. Thighs and under tail-coverts cinnamon brown, much lighter than in *P. amethystina.* Under surface of tail feathers dark brown, nearly black, with faint metallic gloss and a broad grey terminal band. Shafts of feathers black, changing to white at tips. Under surface of wing and axillaries uniform fulvous brown. Bill black. Feet dark pink. Nails dark brown, nearly black. Culmen, 1·02; wing, 5·69; tail, 4·55; tarsus, ·77 inch." (*Bourns & Worcester*). *Habitat.* Negros, on the mountains of the interior.

frontalis, *Bourns & Worces. Occ. Pap. Minnes. Acad.* i. p. 10 (1894); *Grant, Ibis,* 1896, p. 563; *Bourns & Worces. Proc. U.S. Nat. Mus.* xx. pp. 551, 569, 606 (1898).

"General colour of upper surface as in *P. brunneiceps*, but forehead and crown lighter, nape washed with ashy grey, and lacking metallic gloss. Tail glossed with dull bronze instead of amethystine, and terminal band less strongly marked than in *P. brunneiceps.* Under surface much as in *P. brunneiceps*, but everywhere darker. Under tail-coverts ashy grey, slightly tipped with fulvous. Tail much as in *P. brunneiceps*, the outer web of outer pair of feathers being, however, light brown. Basal half of shafts dirty whitish. Apical fourth white, rest brown. Iris pale orange. Bill black. Legs and feet purple. Nails light brown. Sexes alike. Length, 10·37; culmen, 2·00; wing, 5·57; tail, 3·95; tarsus, ·81 inch." (*Bourns & Worcester*). *Habitat.* Cebu.

nigrorum, *Sharpe.* One. Philippine Islands.

occipitalis, *Salvad.*

PTILINOPODINÆ.

PTILINOPUS, *Swains.*

We have here adopted the spelling originally used by Swainson.

[*a.* ***Leucotreron,*** *Bp.*].

occipitalis, *G.R.Gr.* Two. 1 jr. Philippine Islands (Luzon, Manilla).

fischeri, *Brügg.*

fischeri, *subsp.* meridionalis (*Meyer & Wiglesw.*).

marchii, *Oust.*

This species, previously only known from the Type in Paris, has recently been obtained by Mr. Whitehead in the highlands of Lepanto, North Luzon, *cf.* Grant, Ibis, 1895, pp. 468, 469; Whitehead, Ibis, 1899, p. 486.

roseicollis (*Wagl.*). Five. 2 ♂ (1 jr.), ♀. Java (Bantam Residency, Kosala, June, July).

No. 1, ♂, obtained by Mr. H. O. Forbes at Kosala, W. Java, has a large violet spot in the centre of the belly beneath the bottle-green pectoral band.

albocinctus, *Wall.* Two. ♂, ♀. Lombok (Rinjani, at 2500 ft., June, July).

albocinctus, *subsp.* baliensis, *Hart. Nov. Zool.* iii. p. 553 (1896).

"Mr. Doherty sent three skins from Bali, shot in heights of 2000 to 3000 feet, in April. They differ from the Type of *P. albocinctus* in the British Museum, in having the wing a little shorter, the upper surface and especially the greater wing-coverts with a purplish coppery gloss. All these characters are found in *P. albocinctus typicus*, of which I have a large series before me now, but only in immature individuals. I see no reason to assume that the three birds from Bali are immature, and therefore think that they belong to a slightly differentiated, and perhaps a little degenerated, form of *P. albocinctus*. Wing, 150-153 mm. This species was hitherto only known from Flores, but inhabits, as the collections now under my hands prove, all the islands between Flores and Java. According to Doherty the iris of the Bali form is orange red, the feet vermilion, the beak ochreous, basally bluish." (*Hartert*). *Habitat.* Bali.

everetti, *Rothsch. Bull. B.O.C.* li. pp. 34, 35 (1898); *id. Ibis*, 1898, p. 295.

"This species may be described as being between *P. cinctus* and *P. albocinctus*. It differs from *P. cinctus* in having the throat and neck white with fine, narrow, wavy, very pale grey cross lines—instead of white washed with lemon yellow—and in having a wider and lighter terminal bar across the tail feathers. *P. albocinctus* has the throat and neck bluish grey, and the abdomen darker, the bar across the tail narrower. *P. lettiensis* differs in having the neck and throat ivory white and the end of the tail yellowish white not pale grey." (*Rothschild*). *Habitat.* Island of Alor (Timor Group).

cinctus (*Temm.*). Three. ♀. Timor, July.

No. 1, ♀, was collected by S. Müller, on the voyage of the *Triton.*

cinctus, *subsp.* lettiensis, *Schleg.*

alligator, *Collett. P.Z.S.* 1898, pp. 354, 355, pl. xxix. (Type in Brit. Mus.).

"Head and upper neck white; lower neck and chest whitish cinnamon; mantle slate black; lower back greyish black; rump and upper tail-coverts clear grey, the latter inclining to whitish. Lower parts ashy grey, separated from the chest by a broad black band on the lower breast, sharply defined against the chest. Wings slate black, lower surface of the quills grey, the coverts more greyish brown. Tail slate black, with an apical greyish white band about one and half inches in breadth; under surface of the tail clearer grey; under tail-coverts whitish. Bill (in skin) light coloured, the tips yellowish, feet reddish. Wing—Male, 184; female, 189 mm. Tail—Male, 142; female, 141 mm." (*Collett*). *Habitat.* Arnhem Land, N. Australia.

gularis (*Q. & G.*) Two. ♂. Celebes (Minahassa, August).

subgularis, *Meyer & Wiglesw. Abh. Mus. Dresd.* 1896, No. 2, pp. 4, 6, 19; *id. B. Celebes* ii. p. 606 (1898).

"Like *P. gularis*, but the crissum and under tail-coverts dark chestnut brown (instead of pale hazel), and the buff patch on the breast very weakly developed or almost obliterated. Wing, 159-171; tail, about 130; tarsus, about 25; exposed culmen, about 20 mm." (*Meyer & Wiglesworth*). *Habitat.* Peling and Banggai Islands.

mangoliensis, *Rothsch. Bull. B.O.C.* li. p. 34 (1898), *id. Ibis*, 1898, p. 295.

"Belongs to Group A of the arrangement of the genus *Ptilopus* in the 'Catalogue of Birds,' Vol. xxi., and resembles *P. subgularis*, Mey. & Wiglesw., in the absence of the rust coloured spot on the abdomen; but it differs from both *P. gularis* and *P. subgularis* in being greenish yellow on the neck and under surface, all the feathers of these parts being light grey with broad greenish yellow borders.

The feathers of the crown have narrow subterminal lines. Wing of the male 165, of the female 156; tail of male 136, of female 130 mm." (*Rothschild*). *Habitat.* Sula Mangoli.

leclancheri (*Bp.*). One. ♀. Philippine Islands (Luzon).

jambu (*Gm.*). Eighteen. 6 ♂, 10 ♀, 2 juv. Malay Peninsula (Malacca; Pahang, April). Borneo (Labuan; Banjermassim). Java.

[*β*. ***Mezotreron***, *Sharpe*].

Cf. Hand-List Birds, vol. i. p. 56 (1899).

dohertyi, *Rothsch. Bull. B.O.C.* v. p. 46 (1896); *id. Ibis*, 1896, pp. 566, 567; *Hartert, Nov. Zool.* iii. p. 589, pl. xii. (1896); *id. Nov. Zool.* v. pp. 466, 474 (1898).

"*Male adult:*—Head, sides of head, and throat white; occiput and nape bright magenta purple: the nape feathers rather long. Neck and breast very light peach-blossom-pink, feathers with basal half pure white. Mantle—including upper wing-coverts—dark olive, washed with green in some lights and with dark bluish purple in others. Wing dark slate-grey, outer webs strongly glossed with bright metallic purple. Rump and lower back greyish olive green. Tail and longest upper tail-coverts bright reddish purple [dahlia purple (*Ridgway*), pl. viii. fig. 2]. Colour of abdomen separated from that of the breast by a yellowish white semicircular band; abdomen plum-purple. Flanks, vent, and thighs greenish grey, the last bordered with yellow; tarsi pale grey. Under tail-coverts primrose yellow, with centres and most of inner webs greyish green. Tail below brownish ash colour. Beak blackish, anterior third pale orange; toes purplish pink. Wing, 6·9; tail, 5·3; bill, 0·7 inch." (*Rothschild*). *Habitat.* Sumba.

[*γ*. ***Ptilinopus***, *Swains.*].

greyi, *G.R.Gr.* Nine. 5 ♂, 3 ♀. New Caledonia (Noumea, January). New Hebrides (Vaté, Havannah Harbour, June; Aniwa, November). Loyalty Islands (Lifu, Kepeneke, September). Santa Cruz Island.

The two specimens from Santa Cruz are smaller than those from Vaté, which, as Count Salvadori has observed (Cat. Birds, Brit. Mus. xxi. p. 86, 1893) are smaller than those from the Loyalty Islands. In addition the colour of the Santa Cruz specimens is much greyer on the breast, but this may be due to their being spirit specimens. The New Caledonian birds about equal those from the Loyalty Islands in size.

xanthogaster (*Wagl.*). Two. ♀. Timor Laut Islands (Larat, August).

pelewensis, *Hartl. & Finsch.* Two. Pelew Islands.

perousei, *Peale.* Eleven. 7 ♂ (1 jr.), 3 ♀, 1 juv. Samoa. Fiji Islands (Ovalau, December; Rewa).

dupetit-thouarsi (*Neboux*). Five. Marquesas Islands.

T richardsi, *Rams.* One. ♂. Solomon Islands (Ugi, September).

? Type of the species, Proc. Linn. Soc. N.S.W. vi. p. 722 (1881) and of *P. rhodostictus*, Tristr. Ibis, 1882, p. 139, pl. v.

ponapensis, *Finsch.* (= *P. fasciatus*, Peale, Tristr. Cat. Coll. Birds, p. 44). One. ♂. Ponape.

hernsheimi, *Finsch.*

regina (*Swains.*). Fourteen. 7 ♂ (1 jr.), 2 ♀. Northern Australia (Cape York, September; Cooktown, June, July, August).

ewingi, *Gould.* Two. 1 ♂. Timor, November.

No. 1 was collected by S. Müller. Mr. Hartert has shown (Nov. Zool. iv. p. 271, 1897) that the bird known as *P. flavicollis*, G.R.Gr., from Flores, Timor, and the neighbouring Islands, is identical with *P. ewingi*, Gould, from Northern Australia.

fasciatus, *Peale.* Five. 2 ♂, 2 juv. Samoa Islands (Upolu, Ana, December).

The bird recorded by Tristram (Cat. Coll. Birds, p. 44) as *P. pictiventris*, Elliot, is a spirit specimen, apparently very adult. The colour of the brown ventral patch has been partially removed by the spirit, but the purple pectoral band remains very conspicuous.

porphyraceus (*Forster*). Nine. 3 ♂, 2 ♀, 2 juv. Tongatabu, February. Fiji Islands (Wakaia, April, May).

We are doubtful about the identification of two very young specimens without locality. They are perhaps referable to *P. rivolii.*

rarotongensis, *Hartl. & Finsch.* One.

This specimen, which is apparently not quite adult, and which is in an excessively bad condition, was collected by Sir Jos. Banks on Captain Cook's Voyage, and bought by Lord Derby at the sale of the Bullock Museum, along with several others from the same source. It appears to belong to this species, which is distinguished from *P. porphyraceus* by being much smaller.

coralensis, *Peale.* One. Harvey Islands.

smithsonianus, *Salvad.*

purpuratus (*Gm.*). Two. Society Islands.

No. 1 was collected by Sir Jos. Banks and purchased at the sale of the Bullock Museum. It has the feathers of the lower part of the abdomen dull buff, but this may be due to stain. No. 2 is strongly washed with bronze above.

chrysogaster, *G.R.Gr.* Four. Society Islands ([Tahiti]; Huaheine). Marquesas Islands.

Mr. Wiglesworth (Ibis, 1891, p. 571) states that the localities Tahiti and Marquesas Islands are incorrect. Our specimen from the Marquesas Islands was obtained from Verreaux.

roseicapillus (*Less.*). Two. 2 ♂. Marianne Islands (Guam, February, July).

mercieri (*Des Murs & Prév.*).

T **tristrami,** *Salvad.* (= *P. mercieri* (Des Murs & Prév.), Tristr. Cat. Coll. Birds, p. 44). One. Marquesas Islands (Hivaoa).

Type of the species.

huttoni, *Finsch.*

[δ. ***Lamprotreron,*** *Bp.*].

superbus (*Temm.*). Eighteen. 13 ♂ (1 jr.), 5 ♀. Molucca Islands (Amboina, April). New Guinea (Lobo Bay, July). Northern Australia (Red Wallis Island, September; Woody Wallis Island, September; Cape York; Cooktown, July, August). New Britain (Blanche Bay, June). Solomon Islands (Florida).

Nos. 12 and 14 from Amboina and Lobo Bay, New Guinea, were collected by S. Müller.

temmincki (*Des Murs & Prév.*). Two. ♂, ♀. North Celebes.

[ε. ***Eutreron,*** *Salvad.*].

pulchellus (*Temm.*). Six. 2 ♀. New Guinea (Lobo Bay, August; Port Moresby).

No. 6, ♀, from Lobo Bay, was collected by S. Müller.

[ζ. ***Ptilopodiscus,*** *Salvad.*].

coronulatus, *G.R.Gr.* Four. South-East New Guinea (Port Moresby).

huonensis, *Meyer.*

trigeminus, *Salvad.* One. Dutch (?) New Guinea.

geminus, *Salvad.*

quadrigeminus, *Meyer.*

[θ. ***Cyanotreron,*** *Bp.*].

monachus (*Reinw.*). Two. 2 ♂. Molucca Islands (Gilolo; Ternaté).

[ι. ***Chlorotreron,*** *Salvad.*].

humeralis, *Wall.* One. New Guinea.

humeralis, *subsp.* jobiensis, *Schleg.*

biroi, *Madarasz, Természetrajzi Füzetek*, xx. pp. 47-48, pl. i. (1897).

"Green with a bronzy lustre; middle of the abdomen orange sulphur colour beneath, anal region and under tail-coverts white edged with sulphur yellow, the latter with an elongated green spot; chin ashy; scapulars and greater wing-coverts with a greenish blue lustre on their centre; tertials with a paler tinge of the same colour; lesser wing-coverts with a greenish lustre; primaries and secondaries smoky brown, their tips and outer webs green with a bronzy lustre; lesser wing-coverts and secondaries narrowly margined with pale yellow on the outer webs; wing ashy beneath, the lesser wing-coverts tinged with green; tail of a bronzy green lustre above, ashy beneath, with a broad subterminal band blackish; bill green, yellow at the tip, iris sulphur yellow, feet flesh colour. Total length, about 22; wing, 11·2; tail, 5·4; bill from the feathers, 1·4; tarsus, 1·6 cm." (*Madarasz*). *Habitat.* German New Guinea (Friedrich-Wilhelmshafen).

iozonus, *G.R.Gr.* Two. South-East New Guinea. Thursday Island.

The latter locality is probably erroneous.

[κ. ***Œdirhinus,*** *Cab. & Rchnw.*].

insolitus, *Schleg.* Eight. ♂, 2♀. Duke of York Island. New Britain (Blanche Bay, June).

[λ. ***Sylphitreron,*** *Bp.*].

tannensis, (*Lath.*). Four. 2♂, 2♀. New Hebrides (Erromango, June; Tanna; Vaté).

aurantiifrons, *G.R.Gr.* Three. New Guinea.

wallacii, *G.R.Gr.* Two. ♀. Timor Laut Islands (Larat, September). New Guinea.

ornatus, *Rosenb.*

gestroi, *D'Albert. & Salvad.*

zonurus, *Salvad.* (= *P. perlatus* (Temm.) spms. *a*, *b*, Tristr. Cat. Coll. Birds, p. 44). Two. South-East New Guinea (Astrolabe Mts.).

perlatus, (*Temm.*). One. New Guinea.

plumbeicollis, *Meyer.*

[μ. ***Thoracotreron,*** *Salvad.*].

strophium, *Gould.* One. ♂. D'Entrecasteaux Islands (East Island, October).

miqueli, *Rosenb.*

rivolii (*Prev.*). Three. 2♂ (1 jr.), ♀. New Ireland.

prasinorrhous, *G.R.Gr.* Two. 2♂. Kei Islands. New Guinea.

bellus, *Sclat.* Two. ♂, ♀. South-East New Guinea (Astrolabe Mts.).

bellus, *subsp.* orientalis, *De Vis. Ann. Rep. Brit. New Guin. Append.* EE. p. 104 (1894).

"Male at 3450 feet: iris yellow, March 19. This bird with another similar to it, obtained some time ago from Port Moresby, differs from the *P. bellus* of western highlands in the following points:—The bill is green with a yellow tip; between the purple of the abdomen and white of the breast is a patch of deep green like that of the occiput; the rectrices are not margined with yellow, and the seçondaries only so margined near the tips; finally, the colour of the wing is fuscous washed with green." (*De Vis.*). *Habitat.* Mt. Maneao, British New Guinea.

speciosus, *Rosenb.* One. ♂. New Guinea.

The locality "New Guinea" is inexact. The specimen was collected by Dr. Meyer, probably in one of the islands of Geelvink Bay.

johannis, *Sclat.*

T solomonensis, *G.R.Gr.* Two. ♂, ♀. Solomon Islands (San Cristoval, Makira Harbour, August).

These are the Types of *P. ceraseipectus*, Tristr. Ibis, 1879, p. 442.

[ν. ***Spilotreron,*** *Salvad.*].

melanocephalus (*Forst.*) Three. 2♂, ♀. Java (Bantam Residency, Genteng, March).

bangueyensis, *Meyer.*

melanospilus (*Salvad.*). Three. 2♂, ♀. North Celebes (Minahassa, August).

chrysorrhous (*Salvad.*). One. ♂. Sula Island.

chrysorrhous, *subsp.* pelingensis, *Hart. Nov. Zool.* v. p. 135 (1898).

> ". . . Birds from Peling and Banggai . . . are distinctly smaller. The wings of the *males* from Peling and Banggai are generally about 110 mm. long; those of the *males* from Sula Mangoli and Sula Besi are 115-121 mm. long. Peling and Banggai *males* have the wings 109 to 114 (only one!) long, while those from the Sula Islands have them all 115 to 121 mm., but mostly about 120. Also, the tails of the latter are longer." (*Hartert*). *Habitat.* Peling and Banggai.

xanthorrhous (*Salvad.*). Five. 3 ♂, 2 ♀. Great Sanghir Island, June, July. Talaut Islands (Lirung, March, April).

[*o.* ***Ionotreron,*** *Salvad.*].

nanus (*Temm.*).

ionogaster (*Reinw.*). Two. Molucca Islands (Gilolo).

granulifrons, *Hart. Bull. B.O.C.* li. p. 35 (1898); *id. Ibis*, 1898, p. 296; *id. Nov. Zool.* vi. p. 219, pl. iv. fig. 9 (1899).

> "This remarkable new species entirely agrees in the pattern of its colouration with *P. hyogaster* (Temm.) from Halmahera and Batjan, but differs in the following points:—On the forehead, at the base of the bill, is a mass of fleshy knobs, of which there is no sign in *P. hyogaster.* The green of the back and especially of the breast, is much more yellowish. The grey of the head is lighter and covers also the occiput. The vent and under tail-coverts are of a paler lemon yellow. The wing is generally a little shorter, measuring 122-132 mm." (*Hartert*). *Habitat.* Obi.

pectoralis (*Wagl.*).

salvadorii, *Rothsch.*

viridis (*Linn.*). Five. Molucca Islands (Buru; Amboina, July).

musschenbroeki, *Rosenb.* Two. 2 ♀. New Guinea (Lobo Bay, July).

> No. 2, from Lobo Bay, was collected by S. Müller.

lewisii, *Rams.* Four. 4 ♂. Solomon Islands (Florida; Guadalcanar: Marau Sound, September; Rovaté, May).

lewisii, *subsp.* vicinus, *Hart. Nov. Zool.* ii. pp. 62, 63 (1895).

> "The purple red patch of the lower throat and upper breast is not surrounded by such a distinct line of purple as in *P. lewisii*, this latter only being indicated. The purple red patch itself is not quite so large in the new subspecies. The round delicate grey spots on the innermost greater wing-coverts are distinctly larger. The grey spot on the shoulder does not reach so far towards the margin of the wing as in *P. lewisii*; the grey throat is separated (more or less distinctly and broadly) from the purple red breast-patch by a green line, which I do not find even indicated in *P. lewisii.* Iris light red." (*A. Meek*). "There are several specimens marked *females* by the collector, which are like the *males*, except that the purple red breast-patch is remarkably smaller, and that the lower abdomen is more mottled with yellow, this latter, however, being also a sign of immaturity. Measurements of the type—*male*: total length about 21 cm.; wing, 125 mm.; tail, 64 mm.; tarsus, 19 mm.; culmen, 16 mm. Of the *female*: wing, 123 mm.; tail, 58 mm." (*Hartert*). *Habitat.* Fergusson Island.

eugeniæ, *Gould.* One. ♂. Solomon Islands (Ugi, September).

CHRYSŒNAS, *Bp.*

luteovirens (*Hombr. & Jacq.*). Nine. 5 ♂ (1 jr.), 4 ♀. Fiji Islands (Ovalau, February; Rewa, February, July, December).

victor, *Gould.* Ten. 8 ♂ (2 jr.), 2 ♀. Fiji Islands (Taviuni, N'gila, April, July, August; Bua, April).

> The Type of this species should be in the Museum (*cf.* Gould, P.Z.S. 1871, p. 642). Unfortunately it cannot now be found.

viridis, *Layard.* One. ♂. Fiji Islands (Kandavu, September).

DREPANOPTILA, *Bp.*

holosericea (*Temm.*). Five. 2 ♂, 3 ♀. New Caledonia (Moindou, October; Dombea, June, November).

ALECTRŒNAS, *G.R.Gr.*

pulcherrima (*Scop.*). Five. Seychelles (Mahé; Felicité).

sganzani (*Verr.*). Two. Great Comoro Island.

sganzani, *subsp.* minor, *Berl. Abhandl. Senck. Nat. Ges.* p. 493 (1898).

"Closely resembling *A. sganzani* from Anjouan but smaller, the bill especially shorter and the abdomen more greenish. Wing, 154-158; tail, 96-101; culmen, 13½-14½; tarsus, 24½ mm." (*Berlepsch*). *Habitat.* Aldabra.

madagascariensis (*Linn.*). Five. Madagascar, October (Antanarivo, July). [New Guinea].

No. 3, which is probably a young bird, has the back and wings of a greenish lustre, not indigo blue as in the adult birds, and is without the slaty grey tinge on the hind-neck, throat, and upper breast.

nitidissima (*Scop.*). (Extinct).

MEGALOPREPIA, *Reichenb.*

formosa (*G.R.Gr.*). One. ♀. Molucca Islands (Gilolo).

magnifica (*Temm.*). Nine. 1 ♂. Australia ("Rock Point").

On the stand of No. 3, ♂, from "Rock Point," Lord Derby has the following note: "Dr. L[atham] supposed this bird to be his *Columba ænea*, or Nutmeg pigeon, in high or complete plumage."

assimilis (*Gould*). One. ♂. Northern Australia (Cape York).

It is very difficult, if not impossible, to separate this northern race of *M. magnifica*, without an accurate knowledge of the localities. Count Salvadori's diagnosis is, "Similar to *M. magnifica* but smaller. Total length about 14 inches, wing 7·5." He also says, under *M. magnifica*, "Specimens from North Queensland are smaller." North (Rec. Austr. Mus. iii. No. 1, pp. 16, 17, 1897) gives Cairns as the southern limit of *M. assimilis*, but we have seen specimens from Cooktown, which is considerably to the north of Cairns, which undoubtedly belong to the southern form. These specimens were, however, shot in winter, and may have possibly migrated from the south.

poliura, *Salvad.* Four. South-East New Guinea (Possession Bay, October).

poliura, *subsp.* septentrionalis, *Meyer, Abh. Mus. Dresd.* 1893, No. 3, p. 25.

"Closely resembling *M. poliura*, Salvad, but having the tail brownish grey beneath, the under wing-coverts and axillaries lemon yellow, and the median wing-coverts and the innermost tertials much less spotted with yellow. Wing, 160-173; tail, 135-148 mm." (*Meyer*). *Habitat.* Northern and Eastern New Guinea, and the Island of Jobi.

puella (*Less.*). Three. ♀. New Guinea (Lobo Bay, July).

LITHOPHAPS, *De Vis.* (Fossil).

ulnaris, *De Vis.*

CARPOPHAGINÆ.

SERRESIUS, *Bp.*

galeatus, *Bp.*

CARPOPHAGA, *Selby.*

[*a.* ***Globicera,*** *Bp.*].

pacifica (*Gm.*). Five. ♀. South-East New Guinea. New Hebrides (Ambrym, June).

The specimen from the New Hebrides is considerably duller in colour than those from New Guinea, in this respect approaching *C. oceanica*. The metallic colour is more of a coppery lustre, not bronze-green as in the New Guinea examples. Another specimen (=3506 Lord Derby's Mus.), without locality, is somewhat larger and has the ashy colour of the head and mantle considerably darker, passing insensibly into the metallic colour of the back, not sharply defined as in other specimens. It is possibly a different species.

oceanica (*Less.*). One. Pelew Islands.

myristicivora (*Scop.*).

rubricera, *G.R.Gr.* Seven. New Ireland. New Hanover.

T **rufigula,** *Salvad.* One. ♂. Solomon Islands (San Cristoval, Makira Harbour, August).

The Type of *Carpophaga richardsi,* Tristr. Ibis, 1879, p. 443.

auroræ, *Peale.*

wilkesi, *Peale.*

We have followed Hartert in not separating this section generically under *Globicera,* Bp., as is done by Salvadori (Cat. Birds, Brit. Mus. xxi., p. 171), the fleshy knob on the culmen being merely a seasonal peculiarity.

[*β.* ***Carpophaga,*** *Selby.*].

whartoni, *Sharpe.* One. ♂. Christmas Island, October.

ænothorax, *Salvad.*

consobrina, *Salvad.*

vandepolli, *Buttik. Notes Leyd. Mus.* xviii. pp. 190, 191 (1897).

"*Adult female*:—Mantle, back, rump, upper tail-coverts, tail, and wing bronzy green, like in *C. ænea* and allied species, with a strong coppery gloss on back and upper wing-coverts; head and hind-neck down to the mantle, and upper throat ashy grey, without any rosy tinge; frontal edge and chin white, a large patch on the occiput, reaching to the sides of the neck behind the ear-coverts, pinkish brown; lower throat, chest, and sides of the neck grey, washed with vinaceous, entire breast uniform pale wine red; abdomen, flanks, and thighs uniform ashy grey, under tail-coverts dark chestnut, like in *C. consobrina,* darker than in *C. ænea,* under wing-coverts uniform ashy grey. Wing, 22·3; tail, 12·5; culmen, 3·0; unfeathered part of the latter, 2·0 cm." (*Buttikofer*). *Habitat.* Nias.

insularis, *Blyth.* Two. ♀. Nicobar Islands (Teressa Island, January).

concinna, *Wall.* Three. ♂, 2 ♀. Tenimber Islands (Maru Island, September). Banda Sea (Dammar Island, November). Talaut Islands, (Lirung, May).

concinna, *subsp.* separata, *Hart. Nov. Zool.* iii. p. 180 (1896).

"Comparing Ké specimens with a very large series from many localities (Sanghir Islands, Siao, Dammar, Timor Laut, and Djampea), I do not find that they differ in size, but that the entire under surface is not light grey, but creamy white, with only a very faint cinereous tinge." (*Hartert*). *Habitat.* Ké Islands.

intermedia, *Meyer & Wiglesw.* J.f.O. 1894, pp. 238, 249, 250; *iid. Abh. Mus. Dresd.* 1895, No. 9. p. 7; *iid. B. Celebes,* ii. p. 619, pl. xxxix. (1898).

"Like *C. concinna,* but the lower breast and abdomen deep vinaceous buff, not light grey; the under tail-coverts dark chocolate brown, not chestnut; under wing-coverts dark grey, without any green; feathers of frontal edge divided by the culmen into two points, grey like the head, not white; an extensive area on hind-neck pale vinaceous; tail above nearly myrtle green, not dark blue; back dark bronze green, instead of golden green; feet dusky with a red hue, not cherry red. Wing, 263-271; tail, about 160; tarsus, about 28; bill from first feathers of forehead, about 20 mm." (*Meyer & Wiglesworth*). *Habitat.* Talaut Islands (Kabruang and Karkellang).

geelvinkiana, *Schleg.*

paulina (*Temm.*). Two. North Celebes.

pulchella, *Wald.* One. Sula Island.

Count Salvadori has included the Sula Island bird in *C. paulina.* This specimen, however, which was collected by Allen, Mr. Wallace's assistant, differs in being strongly copper coloured above, not green as in *C. paulina.* In *C. pulchella* the ear-coverts are darker and the rufous nuchal patch narrower and paler in colour. The wing is about ½ inch less than *C. paulina.*

nuchalis, *Cab.* One. ♀. Philippine Islands (North Luzon, May).

This specimen bears out Mr. Ogilvie-Grant's remarks on the validity and size of this species (*cf.* Ibis, 1895, p. 116, 117).

ænea (*Linn.*). Fourteen. 2 ♂, ♀. North-West India. Ceylon. Sumatra (Lampong Residency, Hoedjoeng; Palembang Residency, Tandjoeng Djati, Lake Ranau, February). Java. Borneo (Banjermassim; North Borneo). Philippine Islands (Luzon).

No. 13 from the Philippine Islands, collected by Cuming, appears to belong to the form known as *C. sylvatica*, Tick.

The locality may possibly be erroneous, and the specimen may have been collected by Cuming in Ceylon.

rhodinolæma, *Sclat.*

vanwycki, *Cass.* Two. ♂. Duke of York Island, July. New Ireland.

pistrinaria, *Bp.* Two. ♂. Solomon Islands (San Cristoval, Makira Harbour, August; Florida).

rosacea (*Temm.*). Four. ♂, ♀. Timor.

perspicillata (*Temm.*). (= *C. temmincki*, Wall., Tristr. Cat. Coll. Birds, p. 43). Two. [New Guinea.] [Waigiou.]

neglecta, *Schleg.* Two. Molucca Islands (Gilolo; Amboina).

No. 2 (=3490 Lord Derby's Mus.) from Amboina, which in all probability came from the Leyden Museum, is labelled *Columba perspicillata.* From that species, however, it differs in having the head, nape, and fore-neck very much paler grey, the latter with a slight tinge of vinaceous. The specimen from Amboina is more vinaceous beneath, especially on the chin, than that from Gilolo which was collected by Wallace.

pickeringi, *Cass.* One. ♂. Sulu Archipelago (Maimbua, May).

cineracea (*Temm.*).

latrans, *Peale.* One. Fiji Islands.

zoeæ (*Less.*). Two. South-East New Guinea (Astrolabe Mts.).

Dr. Meyer has separated the form from German New Guinea as *C. zoeæ orientalis*, but Count Salvadori doubts its distinctness. Two of the characters given, viz.: the metallic green band between the vinaceous mantle and the chestnut back, and the green tinge on the feathers of the pectoral band, are present in our specimens from the above-mentioned locality.

[γ. ***Ptilocolpa,*** *Bp.*].

carola, *Bp.* (= *C. griseipectus*, Gr., Tristr. Cat. Coll. Birds, p. 42). Seven. ♂. Philippine Islands (Luzon, Manilla).

On the identity of this species and *C. griseipectus*, *cf.* Grant, Ibis, 1894, p. 521; id. op. cit. 1895, p. 117; Whitehead, op. cit. 1899, p. 489. Sharpe (in the Hand-List of Birds, vol. i. p. 65, 1899) keeps them distinct.

nigrorum (*Whitehead*). *Bull. B.O.C.* xliii. p. xxxiv. (1897); *id. Ibis.* 1897, p. 439; id. op. cit. 1899, p. 490.

"Like *C. griseipectus* (Bp). but easily recognised by its black, not ashy, prepectoral spot. Total length, 13 inches; wing, 8·3; tail, 4·8; tarsus, ·85. Base of bill coral pink, tipped with dull white; iris pale straw yellow; feet coral pink." (*Whitehead*). *Habitat.* Negros.

[δ. ***Zonophaps,*** *Salvad.*].

forsteni (*Bp.*). Two. ♂. North Celebes.

poliocephala, *G.R.Gr.* Three. ♀. Philippine Islands (Luzon; Mindanao, Zamboango, March).

Though collected by Cuming in Luzon, as is shown by the specimen enumerated above, this locality has never been published until Whitehead collected the species in the island. The Luzon bird may perhaps be distinguished subspecifically by its somewhat larger size and deeper coloured throat.

radiata (*Q. & G.*). One. North Celebes.

T mindorensis, *Whitehead, Ann & Mag. Nat. Hist.* (6) xviii. p. 189 (1896); *Grant, Ibis,* 1896, pp. 461, 476, pl. xi.; *Bourns & Worces. Proc. U.S. Nat. Mus.* xx. pp. 551, 586 (1898); *Whitehead, Ibis,* 1899, p. 488.

One. ♂. Philippine Islands (Mindoro, January).

"*Adult male*:—Most nearly allied to *C. radiata* (Quoy & Gaimard), but much larger. Top of the head, neck, breast, and rest of under parts bluish slate grey, darkest on the belly and under tail-coverts, the latter indistinctly edged with rufous; forehead, cheeks, and throat pale whitish pink; feathers surrounding the eye and forming a patch above the ear-coverts blackish grey; hind-neck gradually shading into sooty black on the mantle and interscapulary region; scapulars and inner wing-coverts bronze-lake, changing to bronze-green on the rest of the wings, rump, and upper tail-coverts; primary quills blackish grey, the inner ones glossed on the outer web and towards the extremity with metallic green; tail feathers black, glossed with purple and green, and with a wide grey band across the middle; under wing-coverts and axillaries slightly glossed with bronze. Total length, 19·0; exposed part of culmen, 0·9; wing, 9·2; tail, 7·0; tarsus, 1·38; middle toe and claw, 2·0 inches. *Adult female*:—Similar to the male, but rather smaller, and the under tail-coverts distinctly margined with chestnut. Total length, 17·5; exposed part of culmen, 0·9; wing, 8·8; tail, 6·25; tarsus, 1·3; middle toe and claw, 1·8 inches." (*Whitehead*). *Habitat.* Philippine Islands, Highlands of Mindoro.

This specimen is a Paratype of the species.

finschi, *Rams.* One. New Ireland.

basilica, *Sundev.* One. ♀. Molucca Islands (Ternaté, March).

obiensis, *Hart. Bull. B.O.C.* li. p. 35 (1898); *id. Ibis,* 1898, p. 296.

"Of the same pattern of colouration and the same dimensions as *C. basilica*, of the Northern Moluccas, but the entire head, throat, fore-neck, and breast much deeper vinous, with a greyish wash; hind-neck darker grey, separated from the vinous head by a rusty patch. Abdomen and under tail-coverts deep cinnamon, instead of pale cinnamon." (*Hartert*). *Habitat.* Obi Major.

rufiventris, *Salvad.* Two. ♂. New Guinea (Waigiou).

chalconota, *Salvad.*

[ε. ***Ducula,*** *Hodgs.*].

lacernulata (*Temm.*). Three. 2 ♀. Java (Preanger Regencies, Mount Malawar, 6000 ft.; Tapos, August).

cuprea (*Jerd.*).

insignis (*Hodgs.*). Three. Nepaul. Assam.

griseicapilla (*Wald.*). One.

badia (*Raffl.*). Eight. 3 ♂, ♀. Malay Peninsula (Malacca). Sumatra (Lampong Residency, Tarratas). Java (Tapos).

sasakensis, *Hart. Nov. Zool.* iii. pp. 564, 597 (1896).
Two. 2 ♀. Lombok (2300 ft.), June, July.

"Like *C. lacernulata*, but with the under tail-coverts vinaceous grey, not chestnut."

"♂ *adult*:—Cap ashy grey. Hind-neck greyish vinous, passing through ashy grey into the colour of the back, which, like all the rest of the upper parts, is of a brownish slate-colour with a very slight metallic-green tinge and a greyish hue, the rump being more greyish slate. Underparts pale greyish vinaceous, more grey on the chest. Sides of body and under wing-coverts slaty grey. Tail dark slate-colour, tips grey for 37 to 40 mm., slightly darker on the edges. 'Iris deep dull brown; beak dark slate-colour, darker at tip; eyelids dark red; feet dark purplish red; soles ochreous; claws black.' Total length about 140-150 mm.; wing, 227-233; tail, 175; tarsus, 30; middle toe, without claw, 35; culmen, from end of feathering to tip, 20 mm." (*Hartert*). *Habitat.* Lombok.

williami, *Hart. Nov. Zool.* iii. pp. 552, 553 (1896).

"Like *C. lacernulata*, but with the upper part of the head deep greyish vinaceous, neck and upper part of the breast uniform in colour; throat vinaceous; wing, ♀ 194, ♂ 207 mm. . . . The top and sides of the head are deep greyish vinous, a little more greyish than the head; abdomen paler and a little more vinaceous. Thighs grey with only a faint vinaceous tinge. Under tail-coverts chestnut. Rest of upper parts dark brown with a slight greyish and metallic greenish gloss, slaty and somewhat purplish on the rump. Tail above like the back, tips dusky grey for about 43 mm., a little darker at the edges. Tail below paler, tips almost whitish. Under wing-coverts dark slaty grey. ♂:—Wing, 207 mm.; tail, 160; culmen from end of feathering to tip, 19; tarsus, 26, feathered for two-thirds; middle toe, without claw, 30 mm. The *female* is like the *male* but a little smaller (wing, 194 mm.); top of head and hind-neck deeper vinous." (*Hartert*). *Habitat.* Bali.

[ξ. ***Cryptophaps,*** *Salvad.*].

pæcilorrhea (*Brügg.*). One. ♂. North Celebes (Minahassa, October).

[η. ***Zonœnas,*** *Reichenb.*].

muelleri (*Temm.*). One. South-Eastern New Guinea.

muelleri, *subsp.* aurantia, *Meyer, Abh. Mus. Dresd.* 1893, No. 3, p. 25.

"Closely resembling *C. muelleri* (Temm.), but brighter beneath, and with the interscapular region more or less orange chestnut." (*Meyer*). *Habitat.* Northern New Guinea.

pinon (*Q. & G.*). (= *C. westermanni*, Rosenb., Tristr. Cat. Col. Birds, p. 43). Four. ♀. Jobi Island. North-West New Guinea (Dorey). South-West New Guinea (Utanata R.). South-East New Guinea (Port Moresby).

rubiensis, *Meyer.*

westermanni, *Rosenb.*

astrolabiensis, *Meyer.*

C. pinon (Q. & G.), *C. rubiensis*, Meyer, *C. westermanni*, Rosenb., and *C. astrolabiensis*, Meyer, seem very closely allied. The specimen from Jobi Island has the upper and under wing-coverts distinctly edged with paler grey, but not more so than in the specimen from Port Moresby. The white bar on the forehead and the white ring round the eyes are very much less conspicuous in these specimens than in those from Dorey and Utanata R. In the absence of sufficient material it is perhaps safer to leave them all united under *C. pinon.*

T **salvadorii**, *Tristr.* One. ♀. Louisiade Archipelago (St. Aignan Island, October).

Type of the species, Tristr. P.Z.S. 1891, p. 996.

melanochroa, *Sclat.* One. Duke of York Island.

brenchleyi, *G.R.Gr.*

PHÆNORHINA, *G.R.Gr.*

goliath, *G.R.Gr.* Two. 2 ♂. New Caledonia (Dombea, July; Yahoué, October).

MYRISTICIVORA, *Reichenb.*

bicolor (*Scop.*). Thirteen. ♂, ♀. Borneo (Pulo Tiga, April). Celebes. Molucca Islands (Bouru). Philippine Islands (Luzon). Talaut Islands (Lirung, April, May).

spilorrhoa (*G.R.Gr.*). Eight. 3 ♂. South-East New Guinea (Port Moresby). New Britain. Northern Australia (Megapodius Island, August; Turtle Back Island, March; Blackwood Bay, August; Port Essington, Coral Bay, October).

subflavescens (*Finsch*). Three. ♂. New Ireland. New Britain (Ferguson Bay, August).

It is remarkable that this species and *M. spilorrhoa*, of which it is a representative form, should occur on the same island. It was originally described from New Ireland, but has recently been recorded from New Hanover. *Cf.* Hartert, Ibis, 1899, p. 280.

melanura (*G.R.Gr.*). One. Molucca Islands (Bouru).

luctuosa, *Reinw.* One. ♂. Sula Islands.

LOPHOLAIMUS, *G.R.Gr.*

antarcticus (*Shaw*). Six. Eastern Australia (Moreton Bay).

HEMIPHAGA, *Bp.*

novæ-zealandiæ (*Gm.*). Six. ♂. New Zealand (Wellington, June).

spadicea (*Lath.*). Three. ♂, 2 ♀.

Cf. Bull Liverp. Mus. vol. i. pp. 35, 36 (1898).

We have since ascertained that there is another specimen of this species in the Lisbon Museum. It is mounted and in somewhat poor condition, but as far as could be seen without actual comparison, it agrees fairly well with our specimens, though the breast is of a somewhat less bronzy green. It was labelled "Australia."

chathamensis (*Rothsch.*). Three. ♂. Chatham Islands, May.

Carpophaga chathamica, Forbes, *Nature*, vol. xlvi. p. 252.

COLUMBIDÆ.

COLUMBINÆ.

GYMNOPHAPS, *Salvad.*

albertisii, *Salvad.* Two. South-East New Guinea (Astrolabe Mts.). New Ireland.

The second specimen from New Ireland, a locality from which the species has apparently not been hitherto recorded, perfectly agrees with Count Salvadori's description of the not quite adult female. *Cf.* Cat. Birds, Brit. Mus. xxi. p. 240.

COLUMBA, *Linn.*

grisea (*G.R.Gr.*).

unicincta, *Cass.*

leuconota, *Vig.* Six. India. Nepaul. Assam.

rupestris, *Pall.* One. Ladakh (Sakti, May).

rupestris, *subsp.* pallida, *Rothsch. & Hart. Ornith. Monatsb.* i. p. 41 (1893).

"Differing from the typical form by their brighter colouration, the abdomen and under tail-coverts especially being much brighter, the middle of the belly nearly pure white as against slate blue in the dark form, the colouring of the breast and mantle, moreover, being not so deep." (*Rothschild & Hartert*). *Habitat.* East Siberia.

taczanowskii, *Stejn. Proc. U.S. Nat. Mus.* xvi. p. 624 (1893).

"Similar to *C. rupestris* (*i.e.*, with white wing and tail band), but the grey colour darker, the entire breast strongly suffused with wine-purple, with a strong metallic gloss, which in certain lights changes to green; neck all round verdigris green with metallic gloss, which in certain lights changes to purplish." (*Stejneger*). *Habitat.* Corea, Ussuri, and probably Northern China.

livia, *Bonn.* Ten. 3 ♂, 3 ♀. Orkney Islands. Holland, November. Algeria (Tilremht, November; El Ateuf, April). Canary Islands (Hierro, March; Teneriffe, St. Ursula).

neglecta, *Hume.*

melitensis, *Lydékker.* (Fossil).

calcaria, *Milne-Edw.* (Fossil).

gymnocyclus, *G.R.Gr.*

schimperi, *Bp.* Two. ♂, ♀. Palestine (Jericho, January; Marsaba, January).

intermedia, *Strickl.* Seven. 2 ♂, 2 ♀. Ladakh (Chanagund, May). Northern India (Bussahir, Nowghree, February). Southern India (Coonoor Ghat). Japan (Nagasaki, January).

œnas, *Linn.* Two. ♀. England (Norfolk, Northrepps, February; Hants, Mottisfont, January).

eversmanni, *Bp.* One. North-West India (Punjaub, Sirsa, February).

albitorques, *Rüpp.* One. Abyssinia.

guinea, *Linn.* Two. Abyssinia.

guinea, *subsp.* uhehensis, *Rchnw. Ornith. Monatsber.* vi. p. 82 (1898).

"Differs from *C. guinea* in having the grey of the head, chin, under surface of the body and beneath the wings, darker, these areas being also darker than in the South African *C. phæonota*; the reddish brown of the upper back is somewhat darker than in *C. guinea*, the lower back and crop is pale grey as in the latter. Total length, 350; wing, 220; tail, 125; distance between wing and tip of tail, 35; bill, 21; tarsus, 25 mm. *Habitat.* Iringa, in Uhehe, East Africa." (*Reichenow*).

phæonota, *G.R.Gr.* Eight. 2 ♂, skel. South Africa (Transvaal, Potchefstroom, June, September).

mada, *Hart. Bull. B.O.C.*, lx. p. xxxiii. (1899); *id. Ibis*, 1899, p. 311.

♂ :—"Bill yellow, red at base. Top of head and neck pure grey, merging into the colour of the rest of the upper surface, which is slate colour, with light grey

borders to the feathers. Rectrices deep slaty brown, with narrow pale brownish tips. Bare skin round eyes red. Sides of head, chest, throat, and breast buff, palest on the throat. Abdomen brownish vinaceous; under tail-coverts cinnamon. Feet and iris red. Wing, 229; tail, 170; exposed culmen, 16 mm.
"♀:—Like the male, but slightly smaller." (*Hartert*). *Habitat.* Buru (Mt. Mada).

gymnophthalma, *Temm.* Two. ♂, ♀.

picazuro, *Temm.* Three. Bolivia.

albipennis, *Sclat. & Salv.*

maculosa, *Temm.* Two. Bolivia.

These specimens, on comparison, agreed with *C. maculosa* in the British Museum, but they seem to us to come nearer *C. albipennis*. *C. maculosa*, however, has not been recorded from Bolivia, where *C. albipennis* occurs. Our specimens were collected by T. Bridges, and one of the same collector's, also from Bolivia, is recorded in the British Museum Catalogue under *C. albipennis*.

hodgsoni, *Vig.* Three. India.

arquatrix, *Temm.* Ten. ♂, 2 ♀. Central Africa (Nyassaland, Milanji Hills, October). South Africa (Transvaal, Rustenberg, June, November; Natal, Burg Mountains, May; Cape of Good Hope).

arquatrix, *subsp.* thomensis, *Boc.*

From an inspection of the Types in the Lisbon Museum, this is evidently a good subspecies. *C. sjostedti*, Rchnw. (J.f.O. 1898, p. 138), and this subspecies may possibly be identical.

leucocephala, *Linn.* Four. ♂ (jr.). Jamaica.

squamosa, *Bonn.* Five. Antilles (St. Lucia, March). Vera Paz (Coban).

C. squamosa is supposed not to occur on the mainland. As recorded above, however, there is an undoubted specimen of this species in the Museum, which was collected by Delattre, and which bears his label.

speciosa, *Gm.* Eight. Demerara. Venezuela?

inornata, *Vig.*

ænops, *Salv. Nov. Zool.* ii. pp. 20, 21 (1895).

"Vinaceous chestnut, darker on the interscapular region and wing-coverts, throat whitish, lower back, upper and under tail-coverts, abdomen, flanks, and under wing-coverts lead grey; the greater wing-coverts also lead grey narrowly bordered with white on the outer margin; primaries and tail blackish grey, the former very narrowly bordered with white on the outer margin; bill lead-colour at the base, the feet and a ring round the eyes scarlet, iris 'in the living bird' orange. Total length, about 13·0 [inches]; wing, 8·0; tail, 5·4; bill from gape, 1·05; tarsus, 1·05. *Female:*—'Like the male.'" (*Salvin*). *Habitat.* Northern Peru (Vina, Huamachuco, 5500 ft.; Malea, Cajabamba, 8000 ft.)

flavirostris, *Wagl.* Three. Vale of Mexico. Southern Mexico. Central America (River St. John).

flavirostris, *subsp.* madrensis, *Nelson, Proc. Biol. Soc. Washington,* xii. p. 6 (1898).

"Differs from typical *C. flavirostris* in somewhat larger size, decidedly larger and longer bill, and generally paler colour; lower border of greater wing-coverts broadly margined with white, as in *C. gymnophthalma*. . . *Average measurements:*—♂.—Wing, 202·7; tail, 129; culmen, 15·7; tarsus, 27·1 mm. ♀.—Wing, 201; tail, 127; culmen, 16·6; tarsus, 26·3 mm." (*Nelson*). *Habitat.* Tres Marias Islands (Maria Madre).

rufina, *Temm.* Six. Tobago. Brazil (Para).

This species seems to vary very much in the intensity of the terminal tail band. In one specimen from Para, and in another from an unmarked locality, the band is very conspicuous, both above and below, while in the others, especially in the one from Tobago, it is almost invisible. As Count Salvadori has observed (Cat. Birds, Brit. Mus. xxi. p. 289) the specimens with a strongly defined tail band should be known as *C. sylvestris*, Vieill., while the others are true *C. rufina*.

caribæa, *Jacq.* One. ♀. Jamaica.

fasciata, *Say.* Three. 1 ♂. North-West America (Columbia R.). Vera Paz (Coban, November).

vioscæ, *Brewst.*

albilinea, *G.R.Gr.* Two. Bogota.

The specimen without locality was collected by Delattre very probably in Ecuador or Colombia.

crissalis, *Salvad.* Two. Guatemala.

This northern form of *C. albilinea* has been separated by Count Salvadori on account of the paler grey of the abdomen, vent, and under tail-coverts. The differences seem very slight, but are present in the above two specimens, one of which, without locality, was purchased by Canon Tristram at the sale of the Jardine Collection.

tucumana, *Salvad. Boll. Mus. Torino*, No. 208, p. 22 (1895).

"Leaden grey with a slight olive lustre, the wing feathers darker, the lower neck with a greenish golden sheen; tail ashy with a very broad terminal band, dull grey, and another median one, black; under tail-coverts ashy with their edges whitish; bill yellow, dull greyish at the tip; iris, ashy grey; feet yellow. Total length, 360; wing, 205; tail, 125; culmen, 20; tarsus, 27 mm." (*Salvad.*). *Habitat.* N. Argentina (Tucuman).

araucana, *Less.* Five. Chili.

laurivora, *Webb & Berth.* Five. 3 ♂, ♀, juv. Canary Islands (Gomera, San Ambrosio, May; Palma, La Galga, March, April).

bollii, *Godm.* Three. 2 ♂, ♀. Canary Islands (Gomera, May; Palma, La Galga, April; Teneriffe, St. Ursula, at 4200 ft., April).

trocaz, *Heineken.* Three. 2 ♂, ♀. Madeira, February, June.

palumbus, *Linn.* Five. 1 ♀. England (Yorkshire, Darlington, February; Hants., Mottisfont, December). Algeria (La Calle, April). Palestine (Mt. Carmel, March).

casiotis (*Bp.*). Three. Northern India (Cheer Forest, May). Cashmere, August.

torringtoniæ (*Kelaart*). Two. ♂. Ceylon (Kandy, September).

elphinstonii (*Sykes*). Four. ♀. Southern India (Neilgherries, Neddivuttum, July).

No. 4, which is without locality, but which probably came either from Madras or Nellore, is apparently a young bird; the white tips to the neck feathers and the chestnut of the mantle are only faintly indicated, and the grey of the head and throat is much duller in colour and without the metallic sheen which is present in adult birds.

punicea (*Tick.*).

pulchricollis, *Hodgs.*

palumboides (*Hume*). One. ♂. South Andaman Islands, February.

versicolor, *Kittl.*

jouyi (*Stejn.*). One. Loochoo Islands.

ianthina, *Temm.* Three. Japan (Vries Island, May; Yokohama).

nitens, *Kittl.* Two. ♀. Bailey Islands (Hahashima, July). [Japan].

A specimen in the Derby Museum, which probably came from the Leyden Museum, as it was acquired by Lord Derby at the same date as many others collected by Müller, is labelled "*Columba violacea*, Japan." It is in excellent preservation, and minutely agrees with the specimen from the Bailey Islands collected by Holst, and which Count Salvadori has labelled *C. nitens*, Kittl.

metallica, *Temm.* One. Juv. East Timor.

griseigularis (*Wald. & Layard*). One. ♀. Philippine Islands (Basilan, May).

albigularis (*Bp.*). Two. ♀. Mysol. South-East New Guinea (Port Moresby).

hypenochroa (*Gould*). Two. ♂. New Caledonia (Noumea, July),

vitiensis, *Q. & G.* Two. ♂, ♀. Fiji Islands (Rewa; Wakaia, May).

T leopoldi (*Tristr.*). Three. ♀. New Hebrides (Vaté, June; Aneityum, December).

Of the three specimens of this species the Type, ♀, from Vaté, has all the feathers of the chest, centre of the abdomen, and flanks tipped with metallic coppery chestnut, the flanks being dull lead grey. No. 2, from Aneityum, has no chestnut colour whatever on the under surface, and has a strong metallic greenish lustre on the upper breast, not amethystine as in the Type. This bird, Canon Tristram considers *very adult*. No. 3, also from Aneityum, is apparently a much younger bird; the whole under surface—except the throat, which is white, and the flanks, which are lead grey—is dull brown, without metallic lustre, inclining to chestnut on the centre of the abdomen, each feather with a lighter tip.

No. 1 is the Type of the species, Tristr. Ibis, 1879, p. 193.

castaneiceps (*Peale*). Three and sternum. Samoa.

philippana (*Rams.*).

pallidiceps (*Rams.*).

T norfolciensis, *Lath.* Four. Australia.

No. 3, from General Davies' Collection, is in all probability one of the Types of Latham's description. We see no reason for adopting the later name—*C. leucomela*, Temm.—as Count Salvadori has done (Cat. B. Brit. Mus. xxi. p. 320), on the ground that *C. norfolciensis* conveys an erroneous locality. The bird may have been exterminated at a very early date, just as *Hemiphaga spadicea* has been, both in Norfolk and Lord Howe's Islands.

polleni, *Schleg.*

nigrirostris, *Sclat.* Two. ♂, ♀. Panama, February.

plumbea, *Vieill.* Four. Brazil. Bolivia.

subvinacea (*Lawr.*). Two. Ecuador.

subvinacea, *subsp.* berlepschi, *Hart. Nov. Zool.* v. p. 504 (1898).

"Much smaller than *C. subvinacea typica*. Wings, 145-148 mm., against 163-165 in *females*, from Costa Rica; also tail about 10-15 mm. shorter, tarsus 1-2 mm. shorter." (*Hartert*). *Habitat.* N.W. Ecuador.

NESŒNAS, *Salvad.*

mayeri (*Marchal*). One. Mauritius.

A specimen of this rare pigeon in the Museum, which is in perfect preservation, is labelled :—"Pheasant-tailed Pigeon, *Columba phasinella*, Isle of France."

TURTURŒNA, *Bp.*

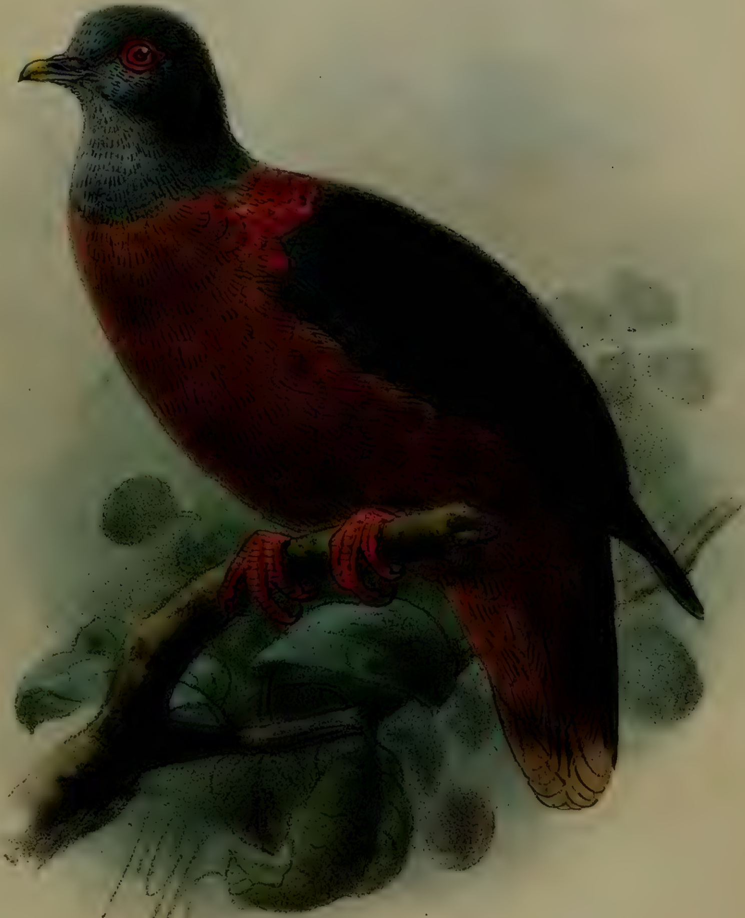
delegorguii (*Delegorgue*). Four. 3 ♂ (1 jr.), ♀. South Africa (Port Natal, August; Pinetown).

The figures of this species given in Cat. Birds, Brit. Mus. xxi. pl. ix., figs. 1, 2 are not quite satisfactory. In the *male* the head and throat are very much greyer, with only the very faintest *greenish*, not reddish, lustre; the whole under surface is very much less vinous than shown; the nape is grey of the same colour as the head and throat, but much more strongly shot with greenish and amethystine reflections; the white collar on the hind-neck is not so pronounced, and the reddish colour of the scapulars and inner wing-coverts is somewhat duller than shown. In the figure of the *female* the head and neck should be copper-coloured, somewhat darker on the occiput, and the characteristic minute vermiculations on the under surface, though mentioned in the description, are not shown. In a *male juvenile* bird the upper breast is more vinous than in the adult, the under tail-coverts are grey, vermiculated with white and stained with rufous along the shaft, and the white collar on the hind-neck is almost absent.

sharpii, *Salvad.*; *Rothsch. Nov. Zool.* i. pp. 41, 42, pl. iii. (1893).

harterti, *Neum.* J.f.O., 1898, p. 287, Tafl. ii.

♀ "Forehead, chin, and throat bright grey, upper head darker grey, with greenish metallic lustre; hinder head and neck copper-red; the lustre on the hinder head and neck metallic red, green in reflected light, the remaining upper surface and tail dusky greyish black, resembling the colour of the back of *T. iriditorques*, and *T. malherbii;* on the rump a slight metallic lustre; lower throat and upper breast grey, strongly washed with golden brown the sides of the neck with a coppery lustre; lower breast and belly grey slightly washed with golden brown;



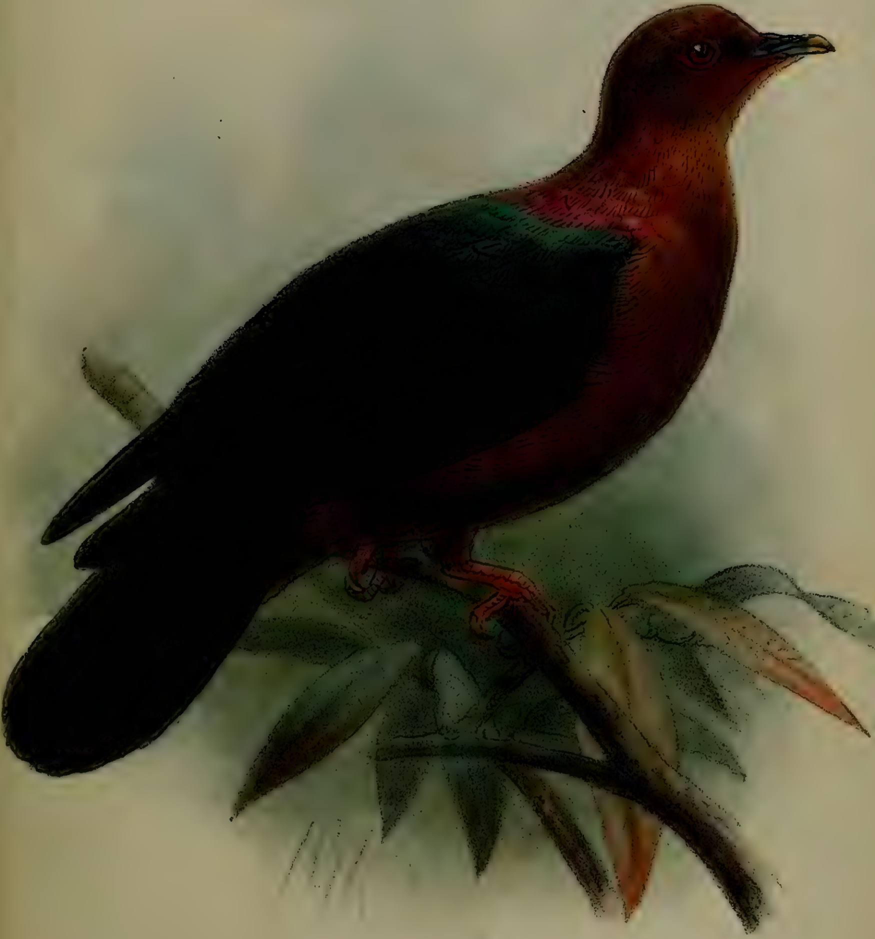
?

J. G. Keulemans del. et lith.

Mintern Bros. imp

Turturœna iriditorques (Cass.), ♂.

BRITISH MUSEUM
NATURAL HISTORY



J. G. Keulemans del. et lith. Mintern Bros. imp.

Turturœna iriditorques (Cass.), ♀.

BRITISH MUSEUM
NATURAL HISTORY

under tail-coverts grey, with cinnamon brown margins. Lower surface of tail dark grey with a just perceptible apical band . . . Length, 310-320; wing, 175-180 mm. Iris, orange brown; bill, bluish; cere, dark slate grey; feet, bright rose colour." (*Neumann*). *Habitat.* East Central Africa, Kilima-Njaro.

incerta, *Salvad.*

iriditorques (*Cass.*). Two. ♂, ♀. (*Columbæ*, pls. ii., iii.)

malherbii (*Verr.*). One. ♂.

An aviary specimen agrees with Count Salvadori's description of the adult female of this species.

MACROPYGIINÆ.

TURACŒNA, *Bp.*

menadensis (*Q. & G.*). Three. North Celebes.

T **menadensis,** *subsp.* **sulaënsis,** *subsp. nov.* One. Sula Islands.

Closely resembling the typical form, but somewhat darker, the metallic colour of the breast and mantle brighter, of a purer green, with no amethystine tinge. Size *much smaller.* Wing 181, against 203 mm. in the mainland form.

T **modesta** (*Temm.*). One. ♂. Timor, May.

Collected by S. Müller in 1829, and bearing his MS. name, "*Columba fumigata.*" Most probably also it is one of the Types of the species.

MACROPYGIA, *Swains.*

tusalia (*Hodgs.*). Eight. ♀, 2 jr. Sikkim, February. Northern India (Darjeeling).

swinhoii, *Wardlaw Rams.* One. Hainan, February.

leptogrammica (*Temm.*). One. ♂. West Java.

magna, *Wall.*

timorlaoensis, *Meyer.* One. ♀. Timor Laut, September.

macassariensis, *Wall.*

This species has also been recorded from Saleyer and Djampea (*cf.* Hartert, Nov. Zool. iii. pp. 166, 180, 182 (1896)).

cinnamomea, *Salvad.*

rufipennis, *Blyth.* One. ♂. South Andaman Islands, March.

tenuirostris, *G.R.Gr.* Four. ♂ juv. Philippine Islands (Luzon, Manilla; Mindanao, Davao, May).

emiliana, *Bp.* Three. Java.

Buttikofer (Notes Leyd. Mus. xviii. pp. 191, 193 (1896)), after comparing specimens from Nias with a large series from Java and the Kangean Archipelago, considers that *M. modiglianii,* Salvad., the specific value of which the author himself is doubtful of (Cat. Birds, Brit. Mus. xxi. p. 349), must be referred to this species.

phasianella (*Temm.*). Seven. ♂, ♀. Australia.

amboinensis (*Linn.*). (= *M. doreya,* Bp., Tristr. Cat. Coll. Birds, p. 39). Three. Amboina. [New Guinea].

keiensis, *Salvad.*

albicapilla, *Temm.* Three. 2 ♂, ♀. North Celebes (Minahassa, Rurukan, August; Menado, September).

sanghirensis, *Salvad.*

maforensis, *Salvad.*

doreya, *Bp.* (= *Macropygia sp.,* spm. *a, ex* Eyton Museum, Tristr. Cat. Coll. Birds, p. 39). One. Jr.

This specimen is very puzzling. It is considered to belong to this species by Major Wardlaw Ramsay, and agrees fairly well with his description of the young bird (*cf.* Ibis, 1890, p. 235). The following is a full description :—Head and upper nape rich rufous chestnut, the bases of the feathers black showing through more conspicuously on the forehead; an ill-defined superciliary stripe whitish; hinder neck and sides of the neck blackish barred and tipped with white, and with a greenish irridescent lustre on the lower neck; back, wing-coverts, and upper tail-coverts dull brown tipped with chestnut rufous becoming almost indian red on the upper tail-coverts; throat whitish, each feather tipped and margined with black; feathers of the upper chest greyish black on the lower parts, with white shafts, a narrow subapical band of black and a broad rufous chestnut tip; lower breast and upper abdomen sandy rufous, lower abdomen, flanks, under tail-coverts and under wing-coverts rich cinnamon rufous somewhat darker on the latter; primaries and secondaries dull brownish, obscurely margined with light rufous, margined internally on the inner web with the colour of the under wing-coverts; the two central tail feathers dull brownish, somewhat more rufous than the primaries, with hardly perceptible blackish bars lighter beneath, other tail feathers cinnamon rufous, the basal portion next to the shaft, and a broad subapical band, blackish.

doreya, *subsp.* **cinereiceps,** *Tristr.* One. New Guinea.

This specimen is merely labelled "New Guinea," but from the "make" of the skin and other considerations, we should imagine that it was collected by Goldie in the neighbourhood of Port Moresby. It has the hinder crown and occiput french grey with greenish amethystine reflections, and the bars on the breast are ill defined. On this and allied species, *cf.* Hartert and Rothschild, *Nov. Zool.* iii. pp. 249, 536.

doreya, *subsp.* griseinucha, *Salvad.*

doreya, *subsp.* cunctata, *Hart. Nov. Zool.* vi. p. 214 (1899).

". . . seems nearest to *M. doreya cinereiceps*, but differs in its distinctly barred breast and a longer wing, ranging in the adult male as far as 170 and 176 mm. The feathers of the hind-neck are widely bordered with metallic green, the forehead is greyish white, usually more or less stained with brown, the crown is slaty grey, the under tail-coverts uniform bright rufous. Young birds have the crown brownish red, the hind-neck barred." (*Hartert*). *Habitat.* Louisiade Archipelago (St. Aignan Island).

batchianensis, *Wall.* (= *M. amboinensis* (L.). spm. *b*, Tristr. Cat. Coll. Birds, p. 39). One. Batchian.

kerstingi, *Rchnw. Ornith. Monatsb.* v. p. 25 (1897); id. *J.f.O.* 1897, pp. 206, 207.

"Allied to *M. batchianensis*, but the reddish chestnut brown of the upper surface darker; belly and under tail-coverts suffused with reddish cinnamon brown brighter on the middle of the belly. Crown and occiput deeper reddish brown; feathers of the crop with broad and markedly vinaceous edges and with narrow grey vermiculations. No grey on the outer tail feathers. Breast feathers normal, not bifurcate; middle tail feathers not banded. Primaries with narrow red margins on their inner webs. No barring on the under surface. Crown and occiput reddish brown strongly washed with vinaceous. Total length, 370; wing, 155-165; tail, 185-200; bill, 17-18; tarsus, 23 mm." (*Reichenow*). *Habitat.* German New Guinea (Nuru and Ramu Rivers).

goldiei, *Salvad.*

carteretia, *Bp.* Four. 2 ♂ (1 jr.), ♀. Moroda Island, July. Duke of York Island, July. New Britain (Blanche Bay).

ruficeps (*Temm.*). Three. 2 ♂, ♀. Western Java (Bantam Residency, 2800 ft., September, October).

ruficeps, *subsp.* **orientalis,** *Hart. Nov. Zool.* iii. p. 573 (1896). One. ♀. South Flores (3500 ft.), October.

"Agreeing with *M. ruficeps* (Temm.) except in their longer wings and their generally darker, deeper rufous under tail-coverts." (*Hartert*). *Habitat.* Lesser Sunda Islands.

nigrirostris, *Salvad.* Two. ♂, jr. New Britain, March.

T rufo-castanea, *Rams.* Two. ♂. Solomon Islands (San Cristoval, Makira Harbour, August; Bugotu).

No. 1, from San Cristoval, is the type of *M. arossi*, Tristr. Ibis, 1879, p. 443.

rufa, *Rams.* One. ♂. New Hebrides (Vatè, June).

mackinlayi, *Rams.*

REINWARDTŒNAS, *Bp.*

reinwardti (*Temm.*). Three. 1 jr. Celebes. Gilolo.

The juvenile bird is in moult to the plumage of the adult, and has the back and scapulars partially rufous, with one or two lavender feathers on the nape.

reinwardti, *subsp.* griseotincta, *Hart. Nov. Zool.* iii. pp. 18, 19 (1896).

> "Comparing specimens of *R. reinwardti* from S.E. New Guinea, Kaiser Wilhelmsland, Arfak, Waigiou, and the Moluccas, I find that the Moluccan birds are much more white on head, neck, and breast, and have more dark feathers on the wing-coverts, besides being a little smaller as a rule; while the birds from New Guinea have the head, neck, and breast much darker grey, more rufous on the wing-coverts, and are perhaps a little larger. Waigiou specimens stand somewhat between Moluccan and Papuan specimens in the darkness of the neck and breast, but belong rather to the latter. Of the New Guinea specimens it may be said that those from Arfak seem to be a little lighter than those from the eastern and southern parts of the island, where they are of the darkest grey. In any case, however, the Moluccan bird is easily recognisable as being whiter, and it is, therefore, desirable to give the Papuan bird a subspecific name . . . Count Salvadori, to whom we owe so much of our knowledge of the Papuan Islands, has already (see Ornitol. Papuas. iii. p. 128) pointed out some differences between Moluccan and Papuan specimens, but gave no new name as he did not consider such local forms important enough to give them a name." (*Hartert*). *Habitat.* New Guinea.

reinwardti, *subsp.* obiensis, *Hart. Bull. B.O.C.* li. p. xxxv. (1898).

> "Differs from the smaller form of *Reinwardtœnas reinwardti* of the Northern Moluccas, in having the chin and cheeks washed with yellowish buff." (*Hartert*). *Habitat.* Obi Major.

minor (*Schl.*).

browni, *Sclat.* Two. ♂, ♀. Duke of York Island, July.

CORYPHŒNAS, *Wardlaw Rams.*

crassirostris (*Gould*). One. ♀. Solomon Islands (Guadalcanar, May).

ECTOPISTINÆ.

ECTOPISTES, *Swains.*

migratorius (*Linn.*). Ten. 4 ♂, 3 ♀, 3 jr. United States (Columbia, Old Soldiers' Home, October; Nebraska).

PERISTERIDÆ.

ZENAIDINÆ.

ZENAIDURA, *Bp.*

carolinensis (*Linn.*). Nine. 6 ♂, 3 ♀. North-West America (Columbia R.) United States (Ohio, Cleveland; Texas, Brownsville). Central America (River St. John; Panama, February, April).

clarionensis, *Towns.* Two. 2 ♀. Clarion Island, July.

graysoni, *Baird.*

ZENAIDA, *Bp.*

aurita (*Temm.*). One. ♀.

T meridionalis (*Lath.*). Four. ♂, ♀. Jamaica.

Cf. Bull. Liverp. Mus. i. p. 36 (1898).

Types of *Southern Pigeon var. A.* Lath. Gen. Hist. viii. p. 28 (1822).

spadicea, *Cory.*

yucatanensis, *Salvad.*

auriculata (*Des Murs*). Seven. ♀, ♂ juv. Brazil (Para). Bolivia.

vinaceo-rufa, *Ridgw.*

ruficauda, *G.R.Gr.*

jessieæ, *Riker.*
stenura, *Bp.*

NESOPELIA, *Sundev.*

galapagoensis (*Gould*). Eight. ♂, ♀. Galapagos Islands (Indefatigable Island, September; Chatham Island, June; Charles Island, November).

galapagoensis, *subsp.* **exsul,** *Rothsch. & Hart. Nov. Zool.* vi. p. 184 (1899). Three. 3 ♂. Galapagos Islands (Culpepper Island, July).

> "Differs from *Nesopelia galapagoensis galapagoensis* in being larger. While the wing of the latter varies in the male from 130-140 mm., it measures in our new subspecies 142-148 mm. . . . Also the females . . . have the wing longer than females from the southern and central islands of the group—*i.e.*, 130·135—while in the latter it varies between 120-129 mm. The tail is also about 5-8 mm. longer in the birds from Culpepper and Wenman Islands. Iris brown, bill black, feet pinkish red, skin round the eye indigo-blue." (*Rothschild & Hartert*). *Habitat.* Northern Galapagos Islands (Culpepper & Wenman).

MELOPELIA, *Bp.*

leucoptera (*Linn.*). Twelve. 4 ♂, 3 ♀. Mexico (Matamoros, August). Jamaica. Central America (Panama, March, May).

meloda (*Tschudi*).

TURTURINÆ.

TURTUR, *Selby.*

[*a.* ***Turtur,*** *Selby.*].

turtur (*Linn.*). Six. 2 ♂, 3 ♀. England (Hants, Mottisfont, August). Canary Islands (Teneriffe, Icod, March). Algeria (Koliah Forest, May). Palestine (Gennesareth, April; Jericho, April).

turtur, *subsp.* arenicola, *Hart. Nov. Zool.* i. p. 42 (1894).

> "Among a number of bird skins from Fao, on the Persian Gulf, recently sent to the Tring Museum, I was surprised to find an extremely pale turtle-dove. It is distinguished from the English turtle-dove by a paler ashy crown, much paler and more sandy coloured back and rump, lighter breast and abdomen, and especially by the very much paler colour of the cinnamon edges to the scapulars and wing-coverts. With only a number of English specimens of the turtle-dove to compare I would have ventured to distinguish the Fao bird specifically, but after having compared it with the grand series in the British Museum, it became evident to me that I could only consider the Fao bird a paler subspecies. It seems that eastern specimens of *T. turtur* are paler as a rule. The specimens from Fao in the British Museum are entirely similar to the one in the Tring Museum, but the differences are perhaps not so obvious as in the latter, because they are in a less good condition. The specimens from the Persian hill countries, from the Kerkhand River, and from Shiraz are paler than European *T. turtur*, and somewhat intermediate between *T. turtur* and the Fao bird. The skin from Turkestan (Prjevalski) is much like the Fao bird, and but a little more vivid in colour; again, those from Yarkand are different from the European bird, and brighter cinnamon on the back, scapulars, and upper wing-coverts.
>
> "I name the Fao bird *T. turtur arenicola*, subsp. nov., and I believe the birds from Yarkand might also be distinguished subspecifically.
>
> "The dimensions of the Type of *T. turtur arenicola* in the Tring Museum are as follows:—Total length about 11 in.; wing, 6·45; tail, 4·4; culmen, 0·68; tarsus, 0·8. English turtle-doves have the wing longer." (*Hartert*). *Habitat.* Fao, Persian Gulf.

isabellinus, *Bp.* Four. 2 ♂, ♀. Egypt (Fayoom, June). Sennaar. Abyssinia.

The three specimens from Sennaar and Abyssinia, were all evidently collected by the same person in 1839, and were obtained from Natterer through Leadbeater in 1840 and 1842. The specimen from Abyssinia obtained in 1840 is labelled "*Columba* (new spec.)"; the other two "*Columba assimilis*, Natt." which appears to be a MS. name. They are probably duplicates from the Vienna Museum, and were possibly collected by Lefebvre.

ferrago (*Eversm.*). Five. ♂. Northern India (Mhow, December; Maunbhoom). Southern India (Nellore).

orientalis (*Lath.*). Eleven. ♂, 3 ♀. Northern India (Nepaul; Mhow, March). China (Chusan, January). Loochoo Islands, January. China Sea (Lat. 33° N., Long. 127°30 E., October). Japan (Nagasaki, January, February; Chiusenze, January; Nikko, April).

lugens (*Rüpp.*). One. Abyssinia.

[*β*. ***Homopelia***, *Salvad.*].

picturatus (*Temm.*). Six. 3 ♂, 2 ♀. Madagascar (Mohambo, September; Ankefana, February). Bourbon (Plaine des Palmistes, January).

The specimen from Bourbon is very markedly distinct from those from Madagascar, and may possibly prove to be a distinct species. The whole under surface is white with a slight tinge of grey on the upper breast, and with the flanks grey, but with no tinge of vinous on the breast or elsewhere. The head is light grey, lighter than in *T. picturatus*, of the same colour as lower back, upper tail-coverts and tail, the latter of which is tipped and edged with brown; under surface of the tail as in *T. picturatus;* mantle, upper back, scapulars, and inner wing-coverts terra cotta merging into whitish grey on the lower neck; primaries, secondaries, outer and lower wing-coverts brownish grey, the primaries and secondaries tipped and margined with whitish, the coverts bordered with the colour of the mantle; under surface of the wing grey; bill without the light tip of *T. picturatus;* iris pearl; size as in *T. picturatus*. We find that Dr. Ridgway (Proc. U.S. Nat. Mus. xviii. pp. 512, 513, 1896) has provisionally given the name *Turtur abbotti* to a bird from the Seychelles, which seems to answer to the above description.

comorensis, *E. Newt.*

aldabranus, *Sclat.*

coppingeri, *Sharpe.*

saturatus, *Ridgw.* Proc. U.S. Nat. Mus. xvi. p. 600 (1893).

"Similar to *T. aldabranus*, Sclater, but much darker; the whole back rich purplish chocolate, the head, neck, and chest similar, but slightly paler; light coloured tips to rectrices more restricted and more tinged with grey (wholly grey in adult female); adult male with sides of neck distinctly glossed with green." (*Ridgway*). "Bill whitish horn at tip, cere and base livid purple; feet livid purple in front, leaden behind." (*Abbott*). *Habitat.* Amirante Group (Ile Poivre; Ile Alphonse ?).

rostratus, *Bp.* Four. Seychelles (Cousin; Marianne).

rodericanus (*Milne-Edw.*). (Fossil).

[*γ*. ***Streptopelia***, *Bp.*].

risorius (*Linn.*). Seven. 2 ♀, jr.

semitorquatus (*Rüpp.*). Six. 2 ♂, ♀. West Africa (Fantee; Gambia, Bathurst, October; British Combo, Barcote, April). Central Africa (Nyassaland, Zomba). South Africa (Port Natal, May).

shelleyi, *Salvad.*

ambiguus, *Boc.* (= *T. decipiens*, Hartl. Tristr. Cat. Coll. Birds, p. 38). One. ♂. Central Africa (Kana, June).

This is the only specimen of this species in the Collection. The specimen from Sobat, mentioned by Count Salvadori (Cat. Birds, Brit. Mus. xxi. p. 420) was not in the Tristram Collection when taken over.

perspicillatus, *Fisch. & Rchnw.*

decipiens, *Finsch & Hartl.*

bitorquatus (*Temm.*). Three. ♀. Java (Bantam, Genteng Lebak, April). Flores.

The Flores bird bears out Count Salvadori's remarks (Cat. Birds, Brit. Mus. xxi. p. 422) as to the presence of a grey wash on the under tail-coverts; in addition it has a wing ½ inch longer than the Javan specimen and a slightly more robust bill.

dussumieri (*Temm.*). Two. Philippine Islands (South Luzon, Manilla).

capicola (*Sundev.*). Five. 2 ♂. South Africa (Transvaal: Rustenberg, August; De Kaap, Fig Tree Creek, July).

damarensis, *Finsch & Hartl.* Two. ♀. East Africa (Pangani R., Usambara Mts.). South Africa (Transvaal, Potchefstroom, October).

vinaceus (*Gm.*). Two. ♂, ♀. West Africa (Gambia, Bathurst, August).

roseogriseus (*Sunder.*).

douraca, *Hodgs.* Five. ♂, ♀. Palestine (Jericho, January). Southern India (Madras; Godavery River, December). Japan (Yokohama, March).

stolizkæ, *Hume.*

[δ. ***Œnopopelia,*** *Blanf.*].

"Distinguished from all other species by its long wing with the first primary nearly or quite equal to the second, and by having the sexes dissimilar in plumage (*Blanford, Fauna Brit. Ind. Aves,* iv. p. 47, 1898).

humilis (*Temm.*). Nine. ♂, ♀. [India]. Mongolia (Zaidam, September). Philippine Islands (Luzon).

tranquebaricus (*Herm.*). (= *T. humilis* (Temm.), spms. *d*, *e*, Tristr. Cat. Coll. Birds, p. 38). Five. ♂, ♀. Northern India (Muddapur, October; Saharumpur, February). Southern India (Nellore).

[ε. ***Spilopelia,*** *Sunder.*].

chinensis (*Scop.*). Five. China (Amoy; Chusan, February). Formosa.

tigrinus (*Temm.*). Ten. Malay Peninsula (Malacca). Borneo (Banjermassim).

suratensis (*Gm.*). Five. Northern India (Bengal; Maunbhoom). Southern India (Ootacamund, February). Ceylon.

[ξ. ***Stigmatopelia,*** *Bp.*].

senegalensis (*Linn.*). Eighteen. 6 ♂, 5 ♀. Northern Africa (Algerian Sahara; Berryan, December; Gardaia, December; Tunis). Palestine (Jordan Valley, Ghor es Safieh, January). Southern Arabia (Lahej, November). Sokotra (Hadibu Plain, December; Adho Dimellus, 3500 ft., February). South Africa (Transvaal, De Kaap, Fig Tree Creek, June).

cambayensis (*Gm.*). Five. 2 ♂. Northern India (Mhow, April; Cawnpore, June; Umballa).

ermanni (*Bp.*).

GEOPELIINÆ.

GEOPELIA, *Swains.*

humeralis (*Temm.*). Seven. ♂. New Guinea. Northern Australia (Torres Straits, July; Blackwood Bay, September). New South Wales. South Australia.

T **tranquilla,** *Gould.* Eight. ♂, ♀. New Guinea. Northern Australia (Port Essington, Victoria, February; Cape Upstart, May; Port Curtis, April).

No. 2, ♂, from Victoria, Port Essington, shot on February 8th, 1841, and purchased from Mr. Gould, is very probably one of the Types of *G. placida,* Gould (P.Z.S. 1844, p. 55).

striata (*Linn.*). Seven. 2 ♂. Malay Peninsula (Singapore). Java (Bantam, Genteng, Lebak, April, November).

maugei (*Temm.*). Two. Timor.

cuneata, *Lath.* Five. South Australia.

SCARDAFELLA, *Bp.*

squamosa (*Temm.*). Nine. 2 ♂. Brazil (Bahia).

Two specimens, which have evidently been kept in captivity, are very much darker on the upper surface and more thickly mottled on the lower; this is probably the effect of captivity, as Count Salvadori has observed (Cat. Birds, Brit. Mus. xxi. p. 486) that an allied species *Chamæpelia talpacoti*, when kept as a cage bird, often becomes wholly or partially melanistic.

ridgwayi, *Richm. Proc. U.S. Nat. Mus.* xviii. pp. 660, 661 (1896). One. Venezuela (Cumana).

"Upper parts (except forehead, forecrown, wing-coverts, and primaries) including middle pair of rectrices, brown—between broccoli and hair brown—the feathers all tipped with dull greenish or bluish black, narrowest on nape and hind-crown; primaries brownish black externally, dark hazel on inner webs and at base of outer webs, appearing on exposed portion of wing as a small irregular spot, just beyond primary coverts; secondaries dark brownish black, narrowly edged with white on the outer web; feathers of wing-coverts mainly white on outer web, brown on inner web, and broadly tipped with black; primary coverts and alula, dull black; forehead, forecrown, superciliary line, and sides of head pale pinkish white, lighter on lores and ear-coverts; the feathers mostly narrowly edged with black; throat white, passing into pale vinaceous on breast, sides of breast, and sides of neck, the feathers on breast with faint indications of black edges, more pronounced on lower part and on sides, remainder of upper parts white, with a wash of pale fawn colour on sides, all the feathers edged with white, these edges broadest on the lower breast and sides of body. Five outer pairs of rectrices black basally, the terminal part white; on the outer feather the white occupies about 1·60 inches; this decreases by 'steps' to the fifth, which has only a slight mottling of white at the end. Under wing-coverts externally chestnut, the feathers with black tips, the inner part wholly black; axillaries black. Wing, 3·82; tail, 3·90; tarsus, 0·68; exposed culmen, 0·60 inches." (*Richmond*). *Habitat.* Margarita Island. Venezuela.

A specimen from Cumana, Venezuela, when compared with two from Bahia, seems to differ in the greater breadth of the black markings on the upper surface, and in the more powerful bill; in the former respect, however, it is nearly approached by three specimens which, in the absence of any locality, we think it safer to leave with *S. squamosa*.

inca (*Less.*). Six. 2 ♀. Texas (Laredo, June). Mexico (Bolanos). Guatemala, March.

GYMNOPELIA, *Sclat. & Salv.*

erythrothorax (*Meyen*). Two. Bolivia.

PERISTERINÆ.

COLUMBULA, *Bp.*

picui, *Temm.* Four. Chili. Bolivia.

CHAMÆPELIA, *Swains.*

passerina (*Linn.*). Nineteen. ♂, 2 ♀. Bermuda. United States (Florida; Texas, Brownsville). West Indies (Jamaica; Trinidad). Venezuela (Cumana). Brazil (Para).

Our material does not admit of our classifying this species under the numerous subspecific names — *terrestris*, Chap.; *pallescens*, Baird; *socorroensis*, Ridg.; *bahamensis*, Maynard; *insularis*, Ridg.; *perpalida*, Hart.—adopted by American ornithologists.

minuta (*Linn.*). Five. Brazil.

cruziana (*D'Orb.*). Four. Ecuador. Peru.

buckleyi, *Sclat. & Salv.*

talpacoti (*Temm.*). Thirteen. 3 ♂. Brazil. Bolivia.

No. 11, ♂ (= 3594 Lord Derby's Mus.), an aviary bird, is partially melanistic.

rufipennis, *G.R.Gr.* Three. Venezuela (Cumana). Tobago.

UROPELIA, *Bp.*

campestris (*Spix*). Four. Brazil. Bolivia.

No. 1 (= 3616 Lord Derby's Mus.), from Brazil, was collected by Natterer.

OXYPELIA, *Salvad.*

cyanopis (*Natt.*).

PERISTERA, *Swains.*

cinerea (*Temm.*). Ten. 6 ♂, 4 ♀. Vale of Mexico. Trinidad. Brazil. Panama, November.

geoffroyi (*Temm.*). Two. ♂, ♀.

melancholica (*Tschudi*).

mondetura, *Bp.*

METRIOPELIA, *Bp.*

melanoptera (*Mol.*). Five. ♀. Ecuador (Intay). Chili.

aymara (*D'Orb.*). Two. Bolivia.

PHABINÆ.

ŒNA, *Selby.*

capensis (*Linn.*). Fourteen. 10 ♂, 3 ♀. West Africa (Gambia, Bathurst, July). South Africa (Damaraland; Transvaal, Potchefstroom, May). Natal.

TYMPANISTRIA, *Reichenb.*

tympanistria (*Temm.*). Five. ♂. East Africa (Ribé). South Africa (Port Natal; Cape of Good Hope).

Count Salvadori considers (Cat. Birds, Brit. Mus. xxi. p. 506, Note) that *T. virgo*, Hartl., from East Equatorial Africa, which differs from *T. tympanistria* in lacking the metallic wing-spots, was described from an imperfect specimen. They are present in the examples from Ribé.

CHALCOPELIA, *Bp.*

afra (*Linn.*). Eleven. 2 ♂, ♀. West Africa (Gambia, Bathurst, July, August; Gold Coast). East Africa (Ribé). Central Africa (Nyassaland, Zomba, February, November). South Africa (Transvaal, De Kaap, Fig Tree Creek, May; Natal).

CHALCOPHAPS, *Gould.*

chrysochlora (*Wagl.*). Eleven. ♂, ♀. Timor. Northern Australia (Hann River, August). Southern Australia. New Hebrides (Aneityum; Tanna, Port Resolution, July). Loyalty Islands (Lifu, Kepeneke, September).

sanghirensis, *Blas.*

indica (*Linn.*). Fifteen. ♂, 2 ♀, juv. Sikkim, January. Bengal. Malay Peninsula (Singapore). Ceylon. Borneo (Baram). Philippine Islands (South Luzon).

T natalis, *Lister.* One. ♀. Christmas Island, October.

Co-Type of the species, Lister. P.Z.S., 1888, p. 522.

stephani, *Reichenb.* Two. ♂, ♀. New Ireland. Duke of York Islands (Maroda Island, July).

stephani, *subsp.* mortoni, *Rams.*

CALOPELIA, *Salvad.*

puella (*Schl.*). Two. West Africa (Fantee).

We follow Capt. Shelley in not recognising *C. brehmeri* (Hartl.) as distinct.

HENICOPHAPS, *G.R.Gr.*

albifrons, *G.R.Gr.* Two. New Guinea (Astrolabe Mts.)

PHAPS, *Selby.*

chalcoptera (*Lath.*). Ten. 3 ♂ (1 jr.), 3 ♀. Australia (Port Essington). Tasmania (Launceston, September).

elegans (*Temm.*). Seven. ♀, juv. Southern Australia (Victoria). Western Australia (Australind, December). Tasmania.

GEOPHAPS, *Gould.*

scripta (*Temm.*). Two. Australia.

smithi (*Jard. & Selby*). Two. Jr. Northern Australia (Port Essington, October).

LOPHOPHAPS, *Reichenb.*

plumifera (*Gould*). Three. 2 ♀. Northern Australia (Port Essington Expedition, River Lynd, June).

leucogaster, *Gould.*

ferruginea, *Gould.*

OCYPHAPS, *Gould.*

lophotes (*Temm.*). Seven. 2 ♂, ♀. Australia (Murray R.)

No. 7 was collected by Capt. Sturt.

HISTRIOPHAPS, *Salvad.*

T histrionica (*Gould*). Five. 2 ♂, ♀, pull. Australia (New South Wales, Namoi, December).

Nos. 1 and 2 were collected by Capt. Sturt; Nos. 3 and 4, ♂, ♀, from Namoi, interior of New South Wales, collected by Gould in December, 1839, and purchased from him, are very probably the Types of the species (P.Z.S., 1840, p. 114) though the female is not there described.

PETROPHASSA, *Gould.*

albipennis, *Gould.*

rufipennis, *Collett, P.Z.S.*, 1898, p. 354; pl. xxviii.

"Head and neck greyish brown, each feather with whitish centre; throat yellowish white unspotted. Lores black; a whitish narrow line above and below the eyelids. All the upper surface and chest rufous brown; each feather margined with rufous; the centre of the feathers of the chest greyish white. Abdomen and under tail-coverts (as in *P. albipennis*) chocolate brown. No metallic spot on the upper wing-coverts, and on one of the secondaries as in that species. Primaries chestnut red, with the tips and outer web blackish, the latter with a slight metallic lustre. The under wing-coverts rufous brown, those of the primaries being more chestnut. Tail rufous brown on the upper surface, chocolate brown (with a slight blue gloss) underneath. Bill and feet as in *P. albipennis*. Wing, 150-152; tail, 146-149 mm." (*Collett*). *Habitat.* Arnhem Land, N. Australia.

GEOTRYGONINÆ.

HAPLOPELIA, *Bp.*

larvata (*Temm.*). Five. 2 ♂, ♀ juv., 2 juv. South Africa (Macamac, July; Natal).

larvata, *subsp.* kilimensis, *Neum. J.f.O.*, 1898, p. 289.

"Differs from *H. larvata*, from Caffraria, in not having the white of the throat continued on to the fore-chest, and in having the copper-red tinge which in typical *H. larvata* is spread over the whole under-surface confined to the upper breast, while the lower breast and belly is bright cinnamon brown without any bronzy sheen—as in *H. inornata*, Rchnw., from the Cameroons. Crissum white." (*Oscar Neumann*). *Habitat.* East Central Africa, Kilima-Njaro.

bronzina (*Rüpp.*). One. Abyssinia.

johnstoni, *Shelley.* One. Central Africa (Nyassaland, Milanji Hills).

inornata, *Rchnw.*

principalis (*Hartl.*). One. Interior of Cayenne.

The specimen labelled as above has been identified as this species at the British Museum. In the original Catalogue of Lord Derby's Collection, it has the same register number as specimens of *Leptoptila jamaicensis*. It very nearly agrees with the description of *Columba erythrothorax*, Temm. & Knip., from Surinam, a species which has not hitherto been identified, but the under tail-coverts are hoary grey, not cinnamon as in that species. Count Salvadori was not acquainted with the species, which, however, is very distinct, distinguished from *H. simplex*, by its more rufous breast, and from all other species of the genus by its white under tail-coverts.

simplex (*Hartl.*). One. ♂.

LEPTOPTILA, *Swains.*

brachyptera, *Salvad.* Two. Mexico. Honduras.

brachyptera, *subsp.* fulviventris, *Lawr.*

brachyptera, *subsp.* capitalis, *Nelson, Proc. Biol. Soc. Washington,* xii. p. 6 (1898).

"Forehead and crown to line between middle of orbits, pale creamy drab, shading abruptly into purplish iridescence, which overlies the remainder of crown and back of neck. This purplish iridescence on the neck ends abruptly just in front of shoulders, and is bordered by a narrow band of feathers tipped with greenish iridescence. Entire dorsal surface, including wings and middle pair of tail feathers brown, with an olive wash, except on tail and upper tail-coverts. Throat distinctly whitish, remainder of lower side of neck, and thence back over chest, delicate creamy lilac ; abdomen and under tail-coverts white, with a pale wash of buffy brown on edges of some of the feathers ; flanks dull buffy-brown ; tail feathers—except middle pair—blackish, tipped with white, this tipping broadest on outer pair of feathers; under tail-coverts and axillars pale cinnamon. . . . *Average measurements:*— ♂.—Wing, 152·5 ; tail, 110·6 ; culmen, 17·9 ; tarsus, 32·2 mm. ♀.—Wing, 151·6 ; tail, 107 ; culmen, 18·8 ; tarsus, 30·6 mm." (*Nelson*). *Habitat.* Tres Marias Islands (Maria Madre).

verreauxi, *Bp.* Four. Tobago. Panama, March.

insularis, *Richm. Proc. U.S. Nat. Mus.* xviii. p. 659 (1895).

"Back, rump, upper tail-coverts, central tail feathers, tertiaries and wing-coverts, greyish olive ; primaries and secondaries (especially at tips), blackish brown, the former (except first) with more or less narrow whitish edges ; tail feathers black, four outer pairs tipped with white, narrowly on the inner one, but increasing toward the outer pair, on which the white tip is one-half inch broad ; outer web of outer tail feather narrowly edged with white for its exposed portion, outer web of outer tail feathers except last mostly greyish olive. Forehead, lores, cheeks, ear-coverts, and lower throat ecru-drab, passing into pale vinaceous on breast and sides of neck and becoming lighter again on lower breast ; chin and centre of throat white ; centre of crown distinctly french grey, passing posteriorly into dull plumbeous mixed with vinaceous on hind-neck, the feathers on sides of occiput, hind-neck, and slightly on sides of neck rather sparingly glossed with purple, and on lower part of hind-neck with green. Centre of abdomen and under tail-coverts white ; sides of body brownish buff, darker on flanks ; axillaries, under wing-coverts, and most of underside of primaries, chestnut ; first primary only narrowly edged with chestnut on inner web. Wing, 5·07 ; tail, 4 ; tarsus, 1·01 ; exposed culmen, 0·66 inches. This specimen is the only one of the four represented in the species in which the centre of the crown is of a pronounced greyish colour, but the others have a trace of it, somewhat masked by the vinaceous tinge of the surrounding parts. The other specimens have the inner web of the first primary mostly chestnut, instead of a narrow edging as in the Type. This species is closely related to *L. verreauxi*, but is smaller, greyer above, with metallic colours on hind neck, occiput, and sides of neck less pronounced. Trinidad and Tobago birds resemble the Margarita form in size, but the colours are more like true *L. verreauxi.* Three other specimens of *L. insularis* measure :—*Male adult*—Wing, 5·25 ; tail, 4·15; tarsus, 1·07 ; culmen, 0·68 inches. *Female adult*—Wing, 5·27 ; tail, 4·08 ; tarsus, 1·07 ; culmen, 0·67 inches. *Female adult*—Wing, 5·23 ; tail, 4·10 ; tarsus, 1 ; culmen, 0·64 inches." (*Richmond*). *Habitat.* Margarita Island.

plumbeiceps, *Sclat. & Salv.* Two. Vera Paz (Choctum, January).

rufaxilla (*Rich. & Bern.*) Two. Surinam, March.

reichenbachi, *Pelz.*

bahiæ, *Berleps.*

chloroauchenia, *Gigl. & Salvad.* One. Bolivia.

Count Salvadori gives the habitat of this species as South Brazil, Paraguay, Uruguay, and Argentine Republic (Cat. Birds, Brit. Mus. xxi. p. 555); it has, however, been recorded as "new to Bolivia" (*cf.* Salvad. Bull. Mus. Torino, xii. No. 292, p. 33, 1897). Our specimen formed part of Bridges' Bolivian Collection, and was acquired by Lord Derby on the same date as the specimen *L. megalura* mentioned below.

callauchen, *Salvad. Bull. Mus. Torino,* xii. No. 292, p. 33 (1897).

"Closely allied to *L. chloroauchenia,* Gigl. & Salvad, but with a coppery amethystine lustre on the upper part of the neck. Total length, 330; wing, 163; tail, 115; tarsus, 32; culmen, 17 mm." (*Salvad.*) *Habitat.* San Lorenzo, Northern Argentina.

ochroptera (*Natt.*).

decolor, *Salvin, Nov. Zool.* ii. p. 21 (1895).

"Above fuscous grey, occiput, nape, and hind-neck somewhat paler, with scarcely any rosy sheen; forehead, throat, and under tail-coverts white, the chest washed with pale vinaceous; wing uniform, with the back on the outer webs of the primaries, inner webs and under wing-coverts chestnut; tail black, the median rectrices uniform with the back; the lateral ones with white tips, which grow wider on the outer ones; bill black, ring round the iris, and feet red. Total length, about 10; wing, 5·5; tail, 4·7; bill from gape, 1·0; tarsus, 4·3? *Female.*—Like the male." (*Salvin*). *Habitat.* Northern Peru.

megalura, *Sclat. & Salvin.* One. Bolivia.

saturata, *Salvad. Bull. Mus. Torino,* xii. No. 292, p. 33 (1897).

"Near to *L. megalura,* Sclat. and Salv., but of a much duller greyish brown.

"Above greyish brown, with a purplish amethystine tinge, lower back somewhat olivaceous; forehead whitish, with a slight greyish tinge on the vertex; occiput and neck brown, suffused with an amethystine lustre; beneath vinaceous, cheeks pale greyish vinaceous; chin and middle of the throat white; middle of the abdomen and under tail-coverts white, the latter with a slight greyish tinge on the outer web; primaries blackish, the outer ones with a barely perceptible rufous edging; under wing-coverts, axillaries, and inner web of the primaries, towards the base, cinnamon; median tail feathers uniform with the back, the remainder brown, grey at the base, black at the tips with the extreme tip white; bill black; feet red; iris brown. Total length, 300; wing, 150; tail, 125; tarsus, 32; culmen, 14 mm." (*Salvad.*). *Habitat.* San Lorenzo, Northern Argentina.

gaumeri (*Lawr.*). One. Yucatan.

jamaicensis (*Linn.*). Five. 3 ♂, ♀. Jamaica.

neoxena, (*Cory*).

collaris (*Cory*).

wellsi (*Lawr.*).

pallida, *Berleps. & Tacz.*

cassini, *Lawr.* Two. 2 ♀. Central America (Panama, February).

cerviniventris, *Sclat. & Salv.*

vinaceiventris (*Ridgw.*).

rufinucha, *Sclat. & Salv.*

OSCULATIA, *Bp.*

sapphirina, *Bp.* One. Bolivia.

There is no collector's name to authenticate this locality, from which the species has not hitherto been obtained.

purpurea, *Salv.*

Cf. Hartert, Nov. Zool. v. p. 504 (1898).

GEOTRYGON, *Gosse.*

violacea (*Temm.*).

montana (*Linn.*). Twelve. Mexico. Jamaica. Interior of Cayenne. Brazil (Bahia).

martinica (*Linn.*). Four. 2 ♂, ♀. St. Lucia (Fouds St. Jacques, March).

mystacea (*Temm.*).

chrysia, *Bp.*

cristata (*Temm.*). Six. 2 ♂. Jamaica.

caniceps (*Gundl.*).

veraguensis, *Lawr.*

veraguensis, *subsp.* cachaviensis, *Hart. Nov. Zool.* v. p. 504 (1898).

"Differs from *G. veraguensis veraguensis* in being distinctly darker and more purplish above." (*Hartert*). *Habitat.* Ecuador.

lawrencei, *Salv.*

costaricensis, *Lawr.*

bourcieri, *Bp.* One.

Probably collected by Tschudi.

frenata, *Tschudi.*

erythropareia, *G.R.Gr.*

chiriquensis, *Sclat.*

linearis (*Prev.*). One. [Guatemala].

venezuelensis, *Salvad.* (= *G. frenata* (Tsch.)? Tristr. Cat. Coll. Birds, p. 40). One. Tobago.

albifacies (*G.R.Gr.*). One.

PHLOGŒNAS, *Reichenb.*

luzonica (*Scop.*). Five. ♂, ♀. Philippine Islands (Luzon, Manilla).

crinigera, *Reichenb.* One. ♂. Philippine Islands (Mindanao, Zamboanga, May).

T **platenæ**, *Blas.* One. ♂. Philippine Islands (Mindoro, Calapan, May).

Co-type of the species, Blasius, *in litt.*

menagei, *Bourns. & Worces. Occ. Pap. Minnes. Acad.* i. p. 10 (1894).

Male:—"Entire upper surface of head, nape, hind-neck, upper back, sides of neck, and sides of breast rich metallic green. Scapulars and interscapulars dark brown, broadly edged with elegant violet when specimen is held between observer and the light, this colour changing to deep green when specimen is held away from source of light. Rump and upper tail-coverts ruddy brown narrowly edged with the metallic colours of the back. A few of the longest coverts nearly black, washed with rufous brown at the tips. Basal portion of tail feathers dark ashy grey, the two central feathers darkest. A distinct subterminal band of black on all but the central pair of feathers. All the feathers with a terminal grey band, least distinct on central pair. Wing-coverts dark brown, broadly tipped with metallic green except outer series, which are broadly tipped with ashy grey. Primary and secondary coverts and secondaries fulvous brown, the outer half of outer webs of feathers rich rufous brown, the inner secondaries having the entire outer web, and tip of inner web, of this colour. Primaries fulvous brown, faintly washed with rufous brown on basal half of outer webs. Lores, a narrow line under eye and ear-coverts nearly black with a faint wash of metallic green.

"The metallic green of back and sides of neck continued in a distinct band across the breast, only slightly interrupted at centre of breast and enclosing a beautiful orange plastron formed by the bristle-like tips of the feathers of the fore-breast. Basal portion of these feathers as well as chin, throat, sides of face, and sides of throat pure white. An indistinct white band behind the green pectoral band. Hind-breast and upper abdomen pearly ash, a few of the feathers tipped with creamy white; belly creamy white; flanks, thighs, and under tail-coverts buff; under surface of tail like upper, the terminal band being rather more pronounced; under wing-coverts, axillaries, and basal portion of inner webs of all the quills chestnut brown; rest of quills dark brown; bill slaty grey at tip, black at base; legs and feet light red; nails light brown; iris light silver grey. Length, 11·25 inches; culmen, ·85; wing, 6·03; tail, 4·07; tarsus, 1·43." (*Bourns & Worcester*). *Habitat.* Sulu Archipelago (Tawi Tawi).

rufigula (*Pucher. & Jacq.*). Two. New Guinea.

helviventris (*Rosenb.*). (= *P. rufigula* (Puch.). spm. *a*, Tristr. Cat. Coll. Birds, p. 41). One. South-East New Guinea (Astrolabe Mts.)

tristigma (*Temm.*).
bimaculata, *Salvad.*
canifrons, *Hartl. & Finsch.*
yapensis, *Hartl. & Finsch.*
beccarii, *Salvad.*

johannæ, *Sclat.* One. ♀. Duke of York Island, July.

granti, *Salvad.* (= *P. johannæ*, Sclat., Tristr. Cat. Coll. Birds, p. 41). One. ♀. Solomon Islands (San Cristoval, Makira Harbour, October).

stairi, *G.R.Gr.*

samoensis, *Finsch* (= *P. stairi*, Gr., Tristr. Cat. Coll. Birds, p. 41). Three. 2 ♂, ♀, sternum. Samoa.

jobiensis, *Meyer.* Four. 2 ♂, 2 ♀. Duke of York Island. New Ireland.

sp. incert. One. ♂ jr. Solomon Islands (Guadalcanar, Aola, May).

kubaryi, *Finsch* (= *P. erythroptera* (Gm.). Tristr. Cat. Coll. Birds, p. 41). One. ♀. Caroline Islands (Ruk, July).

albicollis, *Salvad.*
erythroptera (*Gm.*).

zanthonura (*Temm.*). Four. ♂, ♀. Marianne Islands (Guam, February).

Cf. Hartert, Nov. Zool. v. p. 60, 1898.

Ph. virgo, Rchnw., has been shown on comparison of the Types to be identical with the above (*cf. Hartert, ut supra*).

ALOPECŒNAS, *Finsch.*

This genus is differentiated from *Phlogœnas* by having the outermost primary attenuated.

hœdti (Schleg.).

LEUCOSARCIA, *Gould.*

picata (*Lath.*). Eight. ♂. Eastern Australia (Port Stephens; New South Wales, Hunter River).

EUTRYGON, *Sclat.*

terrestris (*G.R.Gr.*). Two. New Guinea.

leucopareia, *Meyer.*

OTIDIPHAPS, *Gould.*

nobilis, *Gould.* Two. New Guinea.

cervicalis, *Rams.* One. South-East New Guinea.

insularis, *Salv. & Godm.*

STARNŒNAS, *Bp.*

cyanocephala (*Linn.*). One. ♂. West Indies.

CALŒNADINÆ.

CALŒNAS, *G.R.Gr.*

nicobarica (*Linn.*). Eight. 4 ♂, skel. South-East New Guinea (Port Moresby). Solomon Islands (Bugotu). Duke of York Islands (Pipon Island, July; Duke of York Island, July).

pelewensis, *Finsch.*

T maculata (*Gm.*). One.

Cf. Bull. Liverp. Mus. i. p. 83, *Columbæ*, pl. i.

Type of species and of *Spotted Green Pigeon*, Gen. Syn. ii. pt. 2, p. 642, 1783; id. Gen. Hist. viii. p. 23, pl. 117, 1822.

GOURIDÆ.

GOURA, *Steph.*

coronata (*Linn.*). Four. Skel. New Guinea.

cinerea, *Hart. Nov. Zool.* ii. p. 67 (1895).

"General colour above and below cinereous, darker and almost slate grey on the rump and under tail-coverts, lighter and more like pearl grey (Ridgw., Nomencl. Col., pl. ii. fig. 20) on the crest, which has the same form as that of *G. coronata.* Lores and a broad ring round the eye of short soft black feathers. A band across the back, formed of the tips of the feathers, which have slate grey bases, and tips of the upper wing-coverts of a tint between tawny ochraceous and ochraceous rufous of Ridgway (Nomencl. Col., pl. v. figs. 4 and 5), and entirely different from the deep chestnut of the same parts in *G. coronata*, which, even when bleached, could hardly become anything like this colour. Greater upper wing-coverts and secondary quills whitish grey, darker at base. Primaries slate colour, paler along the shaft; rectrices slaty grey, lighter cinereous close to the shaft, and with a broad cinereous band at the tip; under wing and tail-coverts slaty grey; bill and feet in skin of a light yellowish or brownish colour; bill, 4·5 cm.; wing, 34 cm. (= 13·4 inches); tail, 25 cm.; tarsus, 9 cm.; middle toe with claw, 7 cm." (*Hartert*). *Habitat.* Dutch New Guinea, Arfak Region.

sclateri, *Salvad.* Two heads. S.E. New Guinea.

albertisii, *Salvad.* Four. South East New Guinea (Fly R.; Port Moresby).

The specimen from Fly R. (= No. 9695 Tristr. Mus.) is not *G. sclateri* as Count Salvadori suggests (Cat. Birds, Brit. Mus. xxi. p. 622), as it lacks the chestnut on the upper wing-coverts characteristic of that species. No, 3 from Port Moresby is presumably a young bird, as the chestnut on the greater wing-coverts is absent.

scheepmakeri, *Finsch.*

victoria (*Fraser*). Two. Jobi Island.

beccarii, *Salvad.*

beccarii, *subsp.* huonensis, *Meyer.*

PROGURA, *De Vis.* (Fossil).

gallinacea, *De Vis.*

DIDUNCULIDÆ.

DIDUNCULUS, *Peale.*

strigirostris (*Jard.*). Seven. ♂, skel., sternum. Samoa.

DIDIDÆ.

PEZOPHAPS, *Strickl.* (Extinct).

solitarius (*Gm.*). Sundry bones. Rodriguez.

DIDUS, *Linn.* (Extinct).

ineptus, *Linn.* Cast of head and foot. Imperfect skeleton articulated and numerous detached bones. Mauritius.

borbonicus (*Bp.*).

The COLUMBÆ are, therefore, represented in the Museum by 64 out of the 70 characterised genera (2 being fossil forms); and by 1304 specimens belonging to 342 out of the 532 described species (6 being fossil forms). The number of species represented by their Types (or Co-types) is 13; besides 6 relegated to the synonymy. (December, 1899.)

Pterocles.

PTEROCLIDÆ.

SYRRHAPTES, *Ill.*

paradoxus (*Pall.*). Fourteen. 7 ♂, 7 ♀. England (Northumberland, Scremerston, August; Cheshire: Storeton, June; Hoylake). North Wales (Tremadoc, July). Russia (Kirghiz Steppes) (?). China (Tientsin, December).

tibetanus, *Gould.* Two. ♂, ♀. Ladakh (Masinik Pass, October).

PTEROCLURUS, *Bp.*

alchatus (*Linn.*). Four. ♂, 3 ♀.

alchatus, *subsp.* **pyrenaicus** (*Seebh.*). Eleven. 6 ♂, 5 ♀. Spain. Algerian Sahara (El Aghouat, November). Tunis (Karuan; Sfax).

namaqua (*Gm.*). Seven. 4 ♂, 3 ♀. South Africa (Orange Free State, Kroonstadt, September; Damaraland, Swakop River, September).

exustus (*Temm.*). Nine. 4 ♂, 5 ♀. Egypt (Assouan, January). Northern India (Etawah, February). Southern India (Nellore).

T senegallus (*Linn.*). Seven. 3 ♂, 4 ♀. Egypt (Nile). Moab (Ziza, February; Belka Kustul, February). Palestine (Wady-el-R'mail, February).

No. 7, ♀, *ex* Coll. Gen. Davies, is the Type of *Libyan Grouse*, Lath. Gen. Hist. viii. p. 253, pl. cxxviii. (1823).

PTEROCLES, *Temm.*

arenarius (*Pall.*). Thirteen. 6 ♂, 6 ♀, skel. Spain (Madrid, January). Canary Islands (Fuertaventura, Fuineji, March). Algerian Sahara (El Aghouat, November). Turkestan (Borokhudsir, June). Dzungaria.

decoratus, *Cab.*

T variegatus (*Burch.*). Seven. 3 ♂, 4 ♀. South Africa ("Between Latakoo and the Tropic").

Nos. 2 and 3, ♂ and ♀, purchased at the sale of Dr. A. Smith's Collection in 1838, are Types of his description and figure (Rep. Exped. Centr. Afr. p. 56 (1836); Zool. South Afr. pl. x. (1838)).

coronatus, *Licht.* One. ♀. Algerian Sahara (Waregla, December).

T gutturalis, *Smith.* Ten. 6 ♂, 4 ♀ (1 jr.). South Africa (Transvaal, May; Rustenberg, October; Potchefstroom, November).

Nos. 1 and 2, ♂ and ♀, purchased at the sale of Dr. A. Smith's Collection in 1838, are Types of the species.

T personatus, *Gould.* Three. 2 ♂, ♀. Madagascar.

Nos. 1 and 2, ♂ and ♀, are the Types of the species.

fasciatus (*Scop.*). Six. 3 ♂, 3 ♀. Southern India (Nellore; Madras). [Straits of Malacca]. [Abyssinia].

lichtensteini, *Temm.* Three. ♂, 2 ♀. Abyssinia. Arabia (Jeddah).

bicinctus, *Temm.* Three. 2 ♂, ♀. South Africa (Transvaal, May).

T bicinctus, *subsp.* **pallidior,** *subsp. nov.*

Pterocles bicinctus (*partim*), *Grant, Cat. Birds, Brit. Mus.* xxii. p. 31 (Note) (1893).

Three. 2 ♂, ♀. Damaraland (Otjimbinque, September).

♂. Differing from *P. bicinctus typicus* in being generally paler, and in the extreme narrowness of the bars on the back, which are *pale buff* about one-fifth the width of the interspaces, not *rich rufous* of equal or nearly equal width to the *black* interspaces as in *P. bicinctus*. General colour of the mantle and back dull grey, with a strong wash of dull yellowish olive green, more marked on the former; white tips to the feathers of the back more pronounced than on the typical form; lesser upper wing-coverts uniform dull golden-olive not brownish grey broadly tipped with golden olive. Buff of the upper breast decidedly paler. Size slightly smaller than *P. bicinctus.* Wing 170, against 177 mm.

♀. Resembling that of *P. bicinctus,* but perhaps somewhat paler. *Habitat.* Damaraland.

quadricinctus, *Temm.* Twelve. 8 ♂, 4 ♀. West Africa (Gambia, Barra, February). Central Africa (Lado, March).

sepultus, *Milne-Edw.* (Fossil).

varius, *Milne-Edw.* (Fossil).

larvatus, *Milne-Edw.* (Fossil).

validus, *Milne-Edw.* (Fossil).

The PTEROCLES are, therefore, represented in the Museum by all the characterised genera; and by 115 specimens belonging to 17 out of the 22 described species (4 being fossil forms). The number of species represented by their Types (or Co-types) is 4; besides 1 relegated to the synonymy. (December, 1899.)

INDEX TO VOL. II.

Page
abbotti (*Turtur*), 139
Abd-el-Kuri, Island, 1
" New Species of Birds from, 3
" New Species of *Hemiptera* from, 47
" New Species of Landshells from, 12, 13
" New Species of Moth from, 39
" New Species of Reptiles from, 5
" New Scorpion from, 7
" New Spider from, 40
Abu Shahrein, Stone Implement from, 112
Abydos, "Palæolithic" Implements from, 78, 80
Acidalianæ, Sokotran, 38
Acontianæ, Sokotran, 36
Acridiodea, Sokotran, 43
Actophilus, 60
adeliæ (*Pygoscelis*), from Antarctic Regions, 49, 50
Aden, 1
Æchmorhynchus, 72
ædiphlebia (*Hyperythra*), n. sp., 37
Ægialeus, 66
Ægialitis, 67
Ægialitis falklandica, from Antarctic Regions, 48, 49
Ægialitis pamirensis, 66
"æonic tinting," 107
æquinoctialis (*Majaqueus*), from Antarctic Regions, 49
afra (*Coracias*), var., 16
Agricultural Implements of Stone from Egypt, 98
Agrotis brachypecten, n. sp., 35
Agrotis corticea, 36
Akhmim (Egypt), Stone Implements from, 97
alba (*Chionis*), from Antarctic Regions, 48, 49
alba (*Motacilla*), 3
albiluna (*Amefrontia*), n. sp., 37
Alectrœnas, 126
Alca, 51
Alcedinidæ, 19
Alcedininæ, 19
Alcedo, 21
Alcidæ, 51
Alcinæ, 51
Alcyone, 22
Alle, 51
Alopecœnas, 147
Ambrym (Island), 116
Amefrontia, n. gen. 37

Page
Amefrontia albiluna, n. sp., 37
" *purpurea*, n. sp., 37
amphilensis (*Erodia*), 61
Anarhynchus, 68
Ancylochilus, 73
Anomalophrys, 64
Anous, 56
Anous melanops, 56
Anseres, from Antarctic Regions, 48, 49
antamboulou (*Charaxes*), 10
Antarctic Expedition, 48
antarctica (*Priocella*), from Antarctic Regions, 50
antarctica (*Pygoscelis*), from Antarctic Regions, 50
Antarctic Regions, *Anseres* from, 48, 49
" *Limicolæ* from, 48, 49
" Birds in the Derby Museum, Collected in the, 48
" *Impennes* from, 49, 50; *Lari* from, 49; *Passeres* from, 49; *Pygopodes* from, 48, 50; *Steganopodes* from, 48, 50; *Tubinares* from, 48, 49.
antarcticus (*Megalestris*), 49
Aphriza, 66
Aplonis, On a New Species of, from Santa Cruz Island, 116
Aplonis maxwellii, n. sp., 116
" *rufipennis*, 116
Aptenodytes forsteri, from Antarctic Regions, 49, 50
Arabia, South, 1
Araneus cardioceros, n. sp., 40
Araneus cyrtoscapus, 40
Araneus hoplophallus, n. sp., 40
Araneus streptoceros, 40
Arenaria, 62
Arenariinæ, 62
Argiopidæ, Sokotran, 40
Armlets of Flint from Egypt, 105
arossi (*Macropygia*), 136
Arquatella, 73
Asanada socotrana, n. sp., 9
" *brevicornis*, 9
Asarcia, 60
Aspatha, 19
Aspilocoryphus forbesii, n. sp., 46
" *fasciativentris*, 46
Aspongopus assar, n. sp., 47
assar (*Aspongopus*), n. sp., 47
assimilis (*Columba*), 138
Atelornis, 15
atriceps (*Phalacrocorax*), 48, 49, 50
" " Egg of, 50
Attagis, 59
Attagis chimborazensis, 59

Page

Auk, Great, Skeleton and Egg of, 51
Auks, Catalogue of, 51
aureiventris (*Zosterops*), 47
auriceps (*Pharomacrus*), 32
Axe- and Chisel-like Tools of Flint from Egypt, 80, 105
Axe-like Hoes from Egypt, 110
azraël (*Reduvius*), n. sp., 46
azuror (*Merops*), 30

bahamensis (*Chamæpelia*), 141
bahram (*Leptocoris*), n. sp., 46
Ballas (Egypt), 111
Bangles or Bracelets of Stone from Egypt, 78
banksi (*Prion*), from Antarctic Regions, 48, 50
Bartramia, 71
Baryphthengus, 18
Bee-eaters, Catalogue of, 30
Bee-eater, Swallow-tailed, *var.* A, 30
Bellenden-Ker Ranges, 116
Belonopterus, 64
Beni Hasan by Griffith, quoted, 108
Beni Hasan, Tombs at, 108
Benin, Cast-Metal Work from, 13
Benin, Punitive Expedition to, 13
Berbers, 109
bifasciata (*Hiaticula*), 67
Birds from Antarctica, Schalow on, 49
" " Sclater on, 49
Birds in the Derby Museum collected in the Antarctic Regions, 48
Birds, New Species of, from Sokotra, 2
" " from Abd-el-Kuri, 3
Blattodea, Sokotran, 42
Boagrius, 41
Boarmianæ, Sokotran, 37
Bolivaria, 43
Boulenger, G.A., 4
Boyd-Dawkins, Prof., 97, 110
brachypecten (*Agrotis*), n. sp., 35
Brachypteracias, 15
Brachypteraciinæ, 15
Brachyrhamphus, 52
brevicornis (*Asanada*), 9
British Museum, 1
Broad-bladed Axe-like Implements from Egypt, 105
Buliminus (*Chondrula*) *granti*, n. sp., 12
" (*Ovella*) *dahamisensis*, n. sp., 11
" " *fusco-apicata*, n. sp., 12
" " *homhilensis*, n. sp., 11
" " *lævior*, n. sp., 11
" " *pauxillus*, n. sp., 12
" " *riebecki*, 11, 12
" " *socotorensis*, 11
" " *theodoræ*, n. sp., 12
Burhinus, 60
Burr, Malcolm, 42
Butheolus insularis, n. sp., 8
" *melanurus*, 9
Butreron, 118
Butterflies, Three New Species from Sokotra, 10

Page

Cacodmidæ, Sokotran, 45
Calidris, 72
calipareus (*Podicipes*), from Antarctic Regions, 48, 50
Calænadinæ, 147
Calænas, 147
calonyx (*Eurystomus*), 17
Calopelia, 142
capensis (*Daption*), from Antarctic Regions, 50
Capheris crassimanus, 41, 42
Capheris insularis, n. sp., 41
Caprimulgus jonesi, n. sp., 3
" *nubicus*, 3
Carcineutes, 24
Caradrininæ, Sokotran, 35
cardioceros (*Araneus*), n. sp., 40
Carpophaga, 126, 127
" *chathamica*, 130
" *griseipectus*, 128
" *richardsi*, 127
Carpophaginæ, 126
Cast-Metal Work from Benin, 13
Catalogue of *Coraciæ*, 15
Centipede, New, from Sokotra, 9
ceraseipectus (*Ptilinopus*), 124
Cerocala sokotrensis, n. sp., 36
" *vermiculata*, 37
Cerorhyncha, 53
Ceryle, 20
Ceycopsis, 24
Ceyx, 23
Chætusia, 65
Chalcides, 6
Chalcopelia, 142
Chalcophaps, 142
Chamæpelia, 141
" *bahamensis*, 141
" *insularis*, 141
" *pallescens*, 141
" *perpallida*, 141
" *socorroënsis*, 141
" *terrestris*, 141
Charadriidæ, 62
Charadriinæ, 64
Charadrius, 65
Charadrius tricolor, 64
Charadrius winterfeldti, 66
Charaxes antamboulou, 10
" *cowani*, 10
" *velox*, n. sp., 10
chathamica (*Carpophaga*), 130
Chedimeæ, Sokotran, 41
chimborazensis (*Attagis*), 59
Chilopoda, 9
Chionarchus, 61
Chionididæ, 61
Chionis, 61
Chionis alba, from Antarctic Regions, 48, 49
Chisel-like Tools of Flint from Egypt, 80
Chlæphaga, sp. inc., from Antarctic Regions, 49
chlorates (*Zosterops*), 47
Chorætypi, 44
Chlorotreron, 123
Chroantha hataska, n. sp., 47

Chroantha ornatula, 47
Chrysœnas, 125
chrysolaimus (*Merops*), 30
Cicadidæ, Sokotran, 45
Cidaria holophæa, n. sp., 38
Cimicidæ, Sokotran, 47
citrinella (*Zosterops*), 48
Cittura, 29
Cladorhynchus, 68
Clod-Breakers of Stone from Egypt, 98, 105
Clytoceyx, 25
Cockburn Island, Birds Nesting at, 49
Columba, 131
" *assimilis*, 138
Columbæ, 117
Columba curvirostris, 118
" *erythrothorax*, 144
" *fumigata*, 135
" *leucomela*, 134
" *phasinella*, 134
" *sylvestris*, 132
" *violacea*, 133
Columbidæ, 131
Columbinæ, 131
Columbula, 141
Contributions to Zoology of N. Queensland, 115
cooperi (*Heteropygia*), 73
Coraciæ, Catalogue of, 15
Coracias, 16
Coracias afra, var. (Latham), 16
Coraciidæ, 15
Coraciinæ, 16
Cores, Flint, from Egypt, 100
Cormorants at Louis Philippe Land, 49
corticea (*Agrotis*), 36
Corvus, sp. inc., from Antarctic Regions, 49
Coryphœnas, 137
Corythornis, 22
Cotter, Pownall P., 48
Coursers, Catalogue of, 61
cowani (*Charaxes*), 10
Crab-Plovers, Catalogue of, 61
Craspedia fulvicolor, n. sp., 38
crassimanus (*Capheris*), 41, 42
Creagh, Brigadier-General, V.C., 1
crocea (*Truxalis*), 44
Crocopus, 118
Crymophilus, 75
Cryptophaps, 129
Cuckoo-Rollers, Catalogue of, 15
cucullatus (*Vanellus*), 64
Cursoriidæ, 61
Cursorius, 61
curvirostris (*Columba*), 118
Cutmore, W., 1

Dacelo, 25
Dacelo gigas, 116
Dacelo leachii, 116
Dacelo minor, n. subsp. (?), 116
Daceloninæ, 23
dahamisensis (*Buliminus*), n. sp., 11
Danish Art of Flint Work, 109
Daption capensis, from Antarctic Regions, 50
Dawkins, Prof. Boyd-, 97, 110
Dawson, Sir William, 115
Defilippia, 63
Deiphobe, 43
de Morgan, M. (quoted), 79, 80, 98, 99, 100, 108
Dempo Volcano, *Zosterops* from, 47
Denmark, Stone Knives from, 98
Derby, XIIIth Lord, 48
desolatus (*Prion*), from Antarctic Regions, 50
diardi (*Harpactes*), 34
Dicrocercus, 30
Dididæ, 148
Didunculidæ, 148
Didunculus, 148
Didus, 148
dioscoris (*Teddia*), n. sp., 43
Diplopoda, 9
Diplocentrini, 7
Diplocentrus, 7
Discolouration of Flint Implements, 106, 107, 114
Dissosteira forbesii, n. sp., 44
dominicanus (*Larus*), from Antarctic Regions, 49
Drepanoptila, 125
Dromadidæ, 61
Dromas, 61
dubia (*Gallinago*), 74
Ducula, 129

Ectopistes, 137
Ectopistinæ, 137
Efate Island, 116
Egg of *Phalacrocorax atriceps*, 50
Eggs of *Pagodroma nivea*, Note on, 50
Egypt Exploration Fund, 108, 109, 111
Egypt, Flint Implements from Ancient, 77 *et seqq.*
Elasmoscelis iram, n. sp., 45
El Fent, 101
Elphinstone, R.I.M.S., 1
ensis (*Truxalis*), n. sp., 43
Endomychura, 52
Erebus, H.M.S., 48
Eremoplana, 43
Ereunetes, 71
Erodia amphilensis, 61
Erythrogonys, 63
erythrothorax (*Columba*), 144
Esacus, 60
Esna, 100, 101
" "Palæolithic" Implements from, 78
Espiritu Santo (Island), 116
Eudromias, 66
Eumomota, 18
Euptilotis, 32
Eurhynorhynchus, 72
Eurystomus, 17
Eurystomus calonyx, 17
Euthetus granti, n. sp., 46
Eutreron, 123
Eutrygon. 147
Evans, Sir John, 78, 97, 98, 102, 106, 110, 112, 113
Expedition, Punitive, to Benin, 13
Expedition to Sokotra, 1

Page

Fabricators, Stone, from Egypt, 99
falklandica (*Ægialitis*), from Antarctic Regions, 48, 49
Farquhar, Capt. A. M., 116
fasciativentris (*Aspilocoryphus*), 46
Feshn, 101, 106
filiformis (*Glauconia*), n. sp., 7
finschi (*Hæmatopus*), 63
Fischeria, 43
Flakes, Flint, from Egypt, 100
flammealis (*Heterographis*), n. sp., 39
flavicollis (*Ptilinopus*), 122
flavirostre (*Nettion*), from Antarctic Regions, 48, 49
flaviviridis (*Hemidactylus*), 5
Flint Implements from Ancient Egypt, 77 *et seqq.*
Forbes, Dr. H. O., 1
  „ „ on a Collection of Flint Implements from Egypt, 77
  „ „ on a New Species of *Aplonis*, from Santa Cruz Island, 116
  „ „ and Herbert C. Robinson, 15, 117
  „ „ and W. R. Ogilvie-Grant, 2
forbesianum (*Lithidion*), n. sp., 12
forbesii (*Aspilocoryphus*), n. sp., 46
forbesii (*Dissosteira*), n. sp., 44
forbesii (*Hemidactylus*), n. sp., 5
forbesii (*Heteronebo*), n. sp., 8
forbesii (*Odontopeltis*), n. sp., 9
forbesii (*Vaccinium*), 47
forsteri (*Aptenodytes*), from Antarctic Regions, 49, 50
forwoodi (*Motacilla*), n. sp., 3
Forwood, Sir William, 3
Fratercula, 53
Fraterculinæ, 53
Fringillaria insularis, n. sp., 2
Fringillaria socotrana, n. sp., 2
Fringillaria tahapisi, 2
fumigata (*Columba*), 135
Fulgoridæ, Sokotran, 45
fuliginosa (*Phoebetria*), from Antarctic Regions, 49
fulvicolor (*Craspedia*), n. sp., 38
furcatus (*Merops*), 30
fusco-apicata (*Buliminus*), n. sp., 12

Gabianus, 58
gabonensis (*Melittophagus*), n. subsp., 30
Galactochrysea, 62
Gallinago, 73
Gallinago dubia, 74
Gelochelidon, 53
Geobiastes, 15
Geocoris sokotranus, n. sp., 46
Geometridæ, Sokotran, 37
Geopelia, 140
Geopelia placida, 140
Geopeliinæ, 140
Geophaps, 143
Geotrygon, 145
Geotrygoninæ, 143
gigas (*Dacelo*), 116
gigantea (*Ossifraga*), from Antarctic Regions, 50
giu (*Scops*), 2
glacialoides (*Priocella*), from Antarctic Regions, 49
Glareola, 62
Glauconia filiformis, n. sp., 7
  „ *longicauda*, n. sp., 7
Globicera, 126
Glorius, 71
Glottis, 71
Goura, 148
Gouridæ, 148
granti (*Buliminus*), n. sp., 12
granti (*Euthetus*), n. sp., 46
granti (*Hemidactylus*), n. sp., 4
granti (*Heteronebo*), n. sp., 7
granti (*Odontopeltis*), n. sp., 9
granti (*Phaulotypus*), n. sp., 44
Grant, Ogilvie-, W. R., New Species of Butterflies by, 10
  „ „ and Henry O. Forbes, 2
Great Auk, Skeleton and Egg of, 51
Griffith, Archæological Report Egypt Exploration Fund, 111
Griffith's *Beni Hasan* (quoted), 108
Greg, Mr. (quoted), 106
Gregory, Dr. (quoted), 112
grisealis (*Stenia*), n. sp., 39
griseipectus (*Carpophaga*), 128
grisescens (*Vanellus*), 65
griseiventris (*Zosterops*), 48
Grouse, Libyan, 149
Gulls, Catalogue of, 53
Gunn, Dr., 48
Gunn, Ronald (quoted), 55, 58, 64, 67
Gygis, 56
Gymnopelia, 141
Gymnophaps, 131

Hadibu (Sokotra), 1
Hæmatopodinæ, 62
Hæmatopus, 62
Hæmatopus finschi, 63
Hampson, Sir George F., 35
Haplopelia, 143
Halcyon, 25
  „ *mediocris*, 27
  „ *minor*, 28
  „ *norfolkensis*, 27
  „ *pachyrhynchus*, 27
  „ *rufigularis*, 26
Hapalurus, 34
Hapalarpactes, 34
Hapaloderma, 33
Harpactes, 34
  „ *diardi*, 34
Harpoon of Bronze from Egypt, 98
Harpoon-shaped Flint Implement from Egypt, 98
Hartert, E. (quoted), 115
hataska (*Chroantha*), n. sp., 47
Helodromas, 70
Hemidactylus flaviviridis, 5
  „ *forbesii*, n. sp., 5
  „ *granti*, n. sp., 4
  „ *mabuia*, 4
  „ *oxyrhinus*, n. sp., 5

Page
Hemidactylus pumilus, n. sp., 6
hemileucus (*Passer*), n. sp., 3
Hemiparra, 63
Hemiphaga, 130
Hemipodius nivosus, 61
Hemiptera, New Species of, from Sokotra and Abd-el-Kuri, 45
Hemiscorpius lepturus, 8
Hemiscorpius socotranus, n. sp., 8
Herdman, Prof., F.R.S., 97
Henicophaps, 142
Heteractitis, 70
Heterographis flammealis, n. sp., 39
Heterographis (*Staudingeria*) *innotalis*, n. sp., 39
Heterographis yerburii, 39
Heteronebo, n. gen., 7
" *forbesii*, n. sp., 8
" *granti*, n. sp., 7
Heteroptera, Sokotran, 45
Heteropygia, 72
Heteropygia cooperi, 73
Heterotrogon, 33
Hiaticula bifasciata, 67
Himantopodinæ, 68
Himantopus, 68
hippiscus (*Plagiotriptus*), 44
hirundinacea (*Sterna*), from Antarctic Regions, 49
Histriophaps, 143
Hoes of Stone from Egypt, 98
Hoes, Axe-like, 110
holophæa (*Cidaria*), n. sp., 38
homhilensis (*Buliminus*), n. sp., 11
Homopelia, 139
Homoptera, Sokotran, 45
Hooker, Dr. [Sir] Joseph, 48
Hoou (Upper Egypt), Stone Implements from, 97
hoplophallus (*Araneus*), n. sp., 40
Hoplopterus, 64
Hoploxypterus, 63
horrifer (*Klinophilos*), n. sp., 45
Hydralector, 60
Hydrocampinæ, Sokotran, 39
Hydrochelidon, 53
Hydrophasis, 60
Hydroprogne, 53
Hylomanes, 19
Hyperythra œdiphlebia, n. sp., 37
Hypogryphia pulverealis, n. sp., 39

Ibidorhynchinæ, 69
Ibidorhynchus, 69
Illahun, 108
Impennes, from Antarctic Regions, 49, 50
Inca mystacalis, 55
innotalis (*Heterographis*), n. sp., 39
insularis (*Butheolus*), n. sp., 8
" (*Capheris*), n. sp., 41
" (*Chamæpelia*), 141
" (*Fringillaria*), n. sp., 2
" (*Passer*), 3
" (*Plagiotriptus*), n. sp., 44
Ionotreron, 125
iram (*Elasmoscelis*), n. sp., 45
iriditorques (*Turturæna*), 135
Isaacson, 48

Page
Ischnomantis, 43
Ispidina, 24
Isutugan River (Somaliland), 78

Jacana, 60
Jaçanas, Catalogue of, 60
Jacanidæ, 60
Jalelo (Somaliland), 78
Java, *Zosterops* from, 47
Javelin-heads of Stone, 98
Johnson Pasha, 77, 80, 106
jonesi (*Caprimulgus*), n. sp., 3
Jones, Morris P., Esq., J.P., 3

Kabyles, 109
Kahun, Stone Implements from, 97, 98, 108, 110
Kingfishers, Catalogue of, 19
King Shag, Egg of, 49
Kirkaldy, G. W., 45
Klinophilos horrifer, n. sp., 45
Knife-like Instruments of Stone from Egypt, 97
Kom-Achim, Flint Implements from, 80
Koorneh, Flint Bracelets from, 78

lævior (*Buliminus*), n. sp., 11
Lahej (Arabia), 1
Lamprotreron, 123
Landshells, New Species of, from Sokotra and Abd-el-Kuri, 11
Larentianæ, Sokotran, 38
Lark-Plovers, Catalogue of, 59
Lari, 51
Laridæ, 53
Lari, from Antarctic Regions, 49
Larinæ, 56
Larus, 57
" *dominicanus*, from Antarctic Regions, 49
leachii (*Dacelo*), 116
Leaf-shaped Flints from Egypt, 97, 105
Leptocoris bahram, n. sp., 46
Leptoptila, 144
Leptosoma, 15
Leptososomatidæ, 15
lepturus (*Hemiscorpius*), 8
leucomela (*Columba*), 134
Leucophæus, 58
" *scoresbyi*, from Antarctic Regions, 49
Leucosarcia, 147
Leucotreron, 120
Leyland, Note on Collections by Mr., 63
Libyans, 109
Libyan Grouse, 149
Limicolæ, Catalogue of, 59
" from Antarctic Regions, 48, 49
Limnocryptes, 74
Limonites, 72
Limosa, 69
Lithidion forbesianum, n. sp., 12
" *souleyetianum*, 13
Lithophaps, 126
Lobipluvia, 63
Lobivanellinæ, 63
Lobivanellus 64

Page
Loboptera peculiaris, n. sp., 42
longicauda (*Glauconia*), n. sp., 7
Lopholaimus, 130
Lophophaps, 143
Louis Philippe Land, Cormorants at, 49
Lunda, 53
Lygalidæ, Sokotran, 46

mabuia (*Hemidactylus*), 4
maccormicki (*Megalestris*), 49
McCormick, Dr., 49
Macropygia, 135
Macropygia arossi, 136
Macropygia modiglianii, 135
Macropygiinæ, 135
Macrorhamphus, 70
Maghagha (Egypt), 101
Majaqueus æquinoctialis, from Antarctic Regions, 49
Mantidæ, Sokotran, 42
Mantodea, Sokotran, 42
Maori "Meri," 114
Maspero, M. (quoted), 100
Mastacidæ, Sokotran, 44
Maxwell, Maxwell Hyslop-, Jr., 116
maxwellii (*Aplonis*), n. sp., from Santa Cruz, 116
mediocris (*Halcyon*), 27
Medum, 109
Megalestris, 58
Megalestris antarcticus, from Antarctic Regions, 49
" *maccormicki*, from Antarctic Regions, 49
Megaloprepia, 126
Melampsalta omar, n. sp., 45
melæna (*Tarache*), n. sp., 36
melanops (*Anous*), 56
melanurus (*Butheolus*), 9
Melidora, 24
Melittophagus, 30
Melittophagus gabonensis, n. subsp., 30
Melopelia, 138
"Meri" (Maori), 114; (American), 114
Meropidæ, 30
Meropogon, 31
Merops, 31
" *azuror*, 30
" *chrysolaimus*, 30
" *furcatus*, 30
" *savignii*, 31
Mesoscolopax, 69
Metachrostis terminipuncta, n. sp., 36
Metopidius, 60
Metriopelia, 142
Mezotreron, 122
Micranous, 56
Micropalama, 70
Microparra, 60
Microsarcops, 63
Micruria, 52
Millipedes, New, from Sokotra, 9
Milnea, 60
minor (*Halcyon*), 27
modiglianii (*Macropygia*), 135
Momotidæ, 18
Momotinæ, 18
Momotus, 18

Page
Monachalcyon, 29
"Morpholites" of Flint, 79
Motacilla alba, 3
Motacilla forwoodi, n. sp., 3
Moths, New Genus and 14 New Species of, from Sokotra and Abd-el-Kuri, 35
Motmots and Todies, Catalogue of, 18
Museum, British, 1
Myioceyx, 24
Myodochidæ, Sokotran, 46
Myristicivora, 130
mystacalis (*Inca*), 55

Nænia, 55
Naqada, 114
Naqada, "Palæolithic" Implements from, 78
Nagh Hamadi, "Palæolithic" Implements from, 78
Nebo, 7
neglectus (*Pyrotrogon*), n. sp., 34
Neolithic Age, 105
Neoscolopax, 74
Nesænas, 134
Nesopelia, 138
Nettion flavirostre, from Antarctic Regions, 48, 49
"New Race," Flints, 109
" People, 109, 110, 113
newtoniana (*Prionodura*), 116
nigrogularis (*Phalacrocorax*), n. sp., 3
nivea (*Pagodroma*), from Antarctic Regions, 48, 50
" (*Pagodroma*), Note on the Eggs of, 50
nivosus (*Hemipodius*), 61
Noctuidæ, Sokotran, 35
Noctuinæ, Sokotran, 36
Nondescript Worked Flints from Egypt, 100
norfolkensis (*Halcyon*), 27
novæ-hollandiæ (*Trichoglossus*), 115
nubicus (*Caprimulgus*), 3
nudirostris (*Vinago*), 118
Numenius, 69
Nyctiornis, 31

oceanicus (*Oceanites*), from Antarctic Regions, 49
Oceanites oceanicus, from Antarctic Regions, 49
Ochthodromus, 66
" *pyrrhothorax*, 66
Ocyphaps, 143
Odontopeltis forbesii, n. sp., 9
" *granti*, n. sp., 9
Œdicnemidæ, 59
Œdicnemus, 59
Œdipodidæ, Sokotran, 44
Œdirhinus, 124
Ogilvie-Grant, W. R., New Species of Butterflies by, 10
Ogilvie-Grant, W. R., 1; —— and Henry O. Forbes, 2
Œna, 142
Œnopopelia, 140
omar (*Melampsalta*), n. sp., 45

Page
Oreophilus, 63
ornatula (*Chroantha*), 47
Orthoptera, New Genera and Species, from Sokotra, 42
Orthorhamphus, 60
Ortyxelus, 61
Osculatia, 145
Osmotreron, 118
Ossifraga gigantea, from Antarctic Regions, 50
Otidiphaps, 147
Ovoid Flint Implements from Egypt, 105, 111
Oxyechus, 66
Oxypelia, 142
oxyrhinus (*Hemidactylus*), n. sp., 5

pachyrhynchus (*Halcyon*), 27
Pagodroma nivea, from Antarctic Regions, 48, 50
Pagodroma nivea, Note on the Eggs of, 50
Pagophila, 58
Palæolithic Age, 105
pallescens (*Chamæpelia*), 141
pallidior (*Pterocles*), n. subsp., 149
palpebrosa (*Zosterops*), 47
Palpimanidæ, Sokotran, 41
pamirensis (*Ægialitis*), 66
papua (*Pygoscelis*), from Antarctic Regions, 50
Parachalcides, n. gen., 6
" *socotranus*, n. sp., 6
Passer hemileucus, n. sp., 3
" *insularis*, 3
" *pyrrhonotus*, 3
Passeres, from Antarctic Regions, 49
Patina on Flint Implements, 106, 110, 114
pauxillus (*Buliminus*), n. sp., 12
Pavoncella, 71
peculiaris (*Loboptera*), n. sp., 42
Pelargopsis, 19
" *sasak*, 20
Pelidna, 73
Peltohyas, 68
Peltohyatinæ, 68
Peristera, 142
Peristeridæ, 137
Peristerinæ, 141
personatus (*Trogon*), var. an n. sp., 32
Petrie, Prof. Flinders (quoted), 79, 97, 98, 107, 108, 109, 110, 111, 114
Petrophassa, 143
Pezophaps, 148
Phabinæ, 142
Phabotreron, 119
Phænorhina, 130
Phaëthusa, 53
Phalacrocorax atriceps, 48, 49, 50
" " Eggs of, 50
" *nigrogularis*, n. sp., 3
Phalaropodinæ, 75
Phalaropus, 75
Phaleris, 53
Phaps, 143
Pharomacrus, 32
phasinella (*Columba*), 134
Phaulotypus, n. gen., 44

Page
Phaulotypus granti, n. sp., 44
Phegornis, 75
Philohela, 75
Phlogœnas, 146
" *virgo*, 147
Phoebetria fuliginosa, from Antarctic Regions, 49
Phycitinæ, Sokotran, 39
Phyllodromiidæ, Sokotran, 42
Phyllodactylus trachyrhinus, n. sp., 4
Phyllopezus, 60
pictiventris (*Ptilinopus*), 122
Pigeons, Catalogue of, 117
Pigeon, Southern, *var.* A., of Latham, 137
Pits, Flint, in Wady el Sheikh, 101
Pitt-Rivers, General, 78, 115
Pitt-Rivers Museum, Stone Bracelets in, 78
placida (*Geopelia*), 140
Plagiotriptus hippiscus, 44
" *insularis*, n. sp., 44
Plautus, 51
plinius, var. *pulchra* (*Tarucus*), 10
Plovers, Catalogue of, 62
Pluvianus, 61
Pluvianellus, 68
Pocock, Mr. R. I., 7, 40
Podasocys, 66
Podicipes calipareus, from Antarctic Regions, 48, 50
Pownall P. Cotter, 48
Priocella antarctica, from Antarctic Regions, 50
" *glacialoides*, from Antarctic Regions, 49
Pygoscelis antarctica, from Antarctic Regions, 50
" *papua*, from Antarctic Regions, 50
Pyralidæ, Sokotran, 39
Pyrotrogon, 34
" *neglectus*, n. sp., 34
pyrrhonotus (*Passer*), 3
pyrrhothorax (*Ochthodromus*)- 66
Ptychorhamphus, 53
Prion banksi, from Antarctic Regions, 50
" *desolatus*, from Antarctic Regions, 50
" *vittatus*, from Antarctic Regions, 50
Prionornis, 18
Prionotelus, 32
Prionodura newtoniana, On Range of, 116
Procelsterna, 55
Progura, 148
Prosobonia, 72
Pseudoglottis, 71
Pterocles, 149
" *pallidior*, n. subsp., 149
Pteroclidæ, 149
Pteroclurus, 149
Ptilinopodinæ, 120
Ptilinopus, 120, 122
" *ceraseipectus*, 124
" *flavicollis*, 122

Page
Ptilinopus pictiventris, 122
" *rhodostictus,* 122
Ptilocolpa, 128
Ptilonopodiscus, 123
Ptiloscelis, 64
pulverealis (*Hypogryphia*), n. sp., 39
pumilus (*Hemidactylus*), n. sp., 6
Punches of Flint, 80
purpurea (*Amefrontia*), n. sp., 37
Pygopodes, from Antarctic Regions, 48, 50
Pygoscelis adeliæ, from Antarctic Regions, 49, 50; Note on its Egg, 49

quadratus (*Tarucus*), n. sp., 10
Quarries, Flint, in Wady el Sheikh, 101
Quibell, Mr. (quoted), 79, 109, 110, 111, 114

Range of *Prionodura newtoniana,* 116
Recurvirostra, 68
Reduviidæ, Sokotran, 46
Reduvius azraël, n. sp., 46
Report of Smithsonian Institution (1896), (quoted), 114
Reptiles, New Species of, from Sokotra and Abd-el-Kuri, 4
Rheinwardtœnas, 137
Rhinoptilus, 61
Rhodostethia, 56
rhodostictus (*Ptilinopus*) 122
Rhyacophilus, 71
Rhynchopinæ, 56
Rhynchops, 56
richardsi (*Carpophaga*), 127
riebecki (*Buliminus*), 11, 12
Rissa, 58
Robinson, H. C., 47; Contributions to Zoology of N. Queensland, 115
" and Henry O. Forbes, 15, 51, 117
Rollers, Catalogue of, 15
Rostratula, 75
Roth, F. N., 13, 14
Roth, H. L., 13
rubritincta (*Scotosia*), n. sp., 38
rufigularis (*Halcyon*), 26
rufipennis (*Aplonis*), 116
Rupelornis, 71

salvadorii (*Vinago*), 118
Sand-Grouse, Catalogue of, 149
Santa Cruz Island, On a New Species of *Aplonis* from, 116
Sarascelis, 41
Sarciophorus, 63
Sarcogrammus, 64
sasak (*Pelargopsis*), 20
Sauromarptis, 25
savignii (*Merops*), 31
Scardafella, 140
Scelidomachus, n. gen., 41
" *socotranus,* n. sp., 41
Schalow, on Birds from Antarctica, 49
Sclater, on Birds from Antarctica, 49
Scolapacinæ, 72

Page
Scolopax, 74
Scops giu, 2
" *socotranus,* n. sp., 2
Scorpions, New, from Sokotra, 8
" New, from Abd-el-Kuri, 7
Scorpiones, 7
scoresbyi (*Leucophæus*), from Antarctic Regions, 49
Scotosia rubritincta, n. sp., 38
Seena, 54
Scrapers, Flint, from Egypt, 99, 110
Sepsina, 6
septentrionalis (*Trichoglossus*), n. subsp., 115
Serresius, 126
Seton-Karr, H. W., Stone Implements Collected by him in Egypt and Somaliland, 77 *et seqq*; at Ipswich B.A. Meeting, 112; Paper quoted, 80
Shafts sunk for Flint in Ancient Egypt, 102
Sheik Othman (Arabia), 1
Sharpe, Dr. R. Bowdler, 116
Sheath-Bills, Catalogue of, 61
Simorhynchus, 53
Skuas, Catalogue of, 58
Skimmers, Catalogue of 56
Smithsonian Report (1896) (quoted), 114
Smith, E. A., 11
socorroënsis (*Chamæpelia*), 141
socotrana (*Asanada*), n. sp., 9
" (*Fringillaria*), n. sp., 2
socotranus (*Hemiscorpius*), n. sp., 8
" (*Parachalcides*), n. sp., 6
" (*Scelidomachus*), n. sp., 41
" (*Scops*), n. sp., 2
" (*Tarucus*), n. sp., 10
socotorensis (*Buliminus*), 11
Sokotra, Expedition to, 1
" New Species of Birds from, 2
" New Species of Butterflies from, 10
" New Species of *Hemiptera* from, 45
" New Species of Land-shells from, 11
" New Species of Reptiles from, 4
" New Genus and Species of Moths from, 35
" New Genera and Species of *Orthoptera* from, 42
" New Genus and Species of Spiders from, 40
" New Species of Scorpions, Centipedes, and Millipedes from, 7
sokotranus (*Geocoris*), n. sp., 46
sokotrensis (*Cerocala*), n. sp., 36
Solygia, 43
Somaliland, 112; "Palæolithic" Implements from, 78
souleyetianum (*Lithidion*), 13
South Arabia, 1
Southern Pigeon, *var.* A. (Latham), 137
Sphendale, 43
Sphenocercus, 117

Page
Spiders, New Genus and Species from Sokotra and Abd-el-Kuri, 40
Spilotreron, 124
Spilopelia, 140
Spurrell, Mr., on Flint Implements from Egypt, 79
Squatarola, 65
Starnœnas, 147
Steganopodes, from Antarctic Regions, 48, 50
Steganopus, 75
Stenia grisealis, n. sp., 39
Stephanibyx, 65
Stercorariidæ, 58
Stercorarius, 59
Steriphopus, 41
Sterninæ, 53
Sterna, 54
" *hirundinacea*, 49
Stigmatopelia, 140
Stiltia, 62
Stone-Curlews, Catalogue of, 59
Stone Implements, On a Collection of, in the Mayer Museum, made by Mr. H. W. Seton-Karr in Mines of the Ancient Egyptians discovered by him on the Plateaux of the Nile Valley, 77
streptoceros (*Araneus*), 40
Streptopelia, 139
sulaënsis (*Turacœna*), n. subsp., 135
Swallow-tailed Bee-eater, *var.* A. (Latham), 30
Sylphitreron, 124
sylvestris (*Columba*), 132
Syma, 24
Symphemia, 70
Synthliborhamphus, 52
,, *wumizusume*, Head of, in Breeding Plumage, 52
Syrrhaptes, 149

tahapisi (*Fringillaria*), 2
Tanysiptera, 29
Tarache melœna, n. sp., 36
Tarucus plinius, var. *pulchra*, 10
" *quadratus*, n. sp., 10
" *socotranus*, n. sp., 10
" *telicanus*, 10
" *theophrastus*, 10, 11
Teddia, n. gen., 42
" *dioscoris*, n. sp., 43
telicanus (*Tarucus*), 10
Tenimber Islands, *Zosterops* from, 48
Terekia, 71
terminipuncta (*Metachrostis*), n. sp., 36
Terns, Catalogue of, 53
terrestris (*Chamæpelia*), 141
Terror, H.M.S., 48
Thebes, "Palæolithic" Implements from 78, 110, 111, 114
theodoræ (*Buliminus*), n. sp., 12
theophrastus (*Tarucus*), 10, 11
Thinocoridæ, 59
Thinocorus, 59
Thinornis, 68
Thoracotreron, 124
Tmetotrogon, 32

Page
Todies and Motmots, Catalogue of, 18
Todinæ, 19
Todirhamphus, 28
Todus, 19
Tongue-shaped Flints from Egypt, 105
Totanus, 70
Totaninæ, 69
Toukh, Stone Implements from, 99, 100
trachyrhinus (*Phyllodactylus*), n. sp., 4
Treron, 118
Treronidæ, 117
Treroninæ, 117
Trichoglossus novæ-hollandiæ, 115
" *septentrionalis*, n. subsp., 115
tricolor (*Charadrius*), 64
Tringa, 73
Tringites, 72
Tringoides, 70
Tristram, Canon, D.D., 48, 116
Trogon, 32
" *personatus*, var. an n. sp., 32
Trogonidæ, 32
Trogons, Catalogue of, 32
"Truncheons," Flint, from Egypt, 99, 103, 105
Truxalidæ, Sokotran, 43
Truxalis, 44
Truxalis crocea, 44
Truxalis ensis, n. sp., 43
Tubinares, from Antarctic Regions, 48, 49
Turacœna, 135
" *menadensis*, subsp. *sulaënsis*, n. subsp., 135
Turtur, 138
" *abbotti*, 139
Turturinæ, 138
Turturœna, 134
" *iriditorques*, 135
Tympanistria, 142
" *virgo*, 142

Uratelornis, 16
Uria, 51
Uropelia, 141
Urospatha, 18
Usertesen II., 108

Vaccinium forbesii, 47
" , *Zosterops* Feeding on, 47
Vanellus, 65
" *cucullatus*, 64
" *grisescens*, 65
velox (*Charaxes*), n. sp., 10
vermiculata (*Cerocala*), 37
Vinago, 117
" *nudirostris*, 118
" *salvadorii*, 118
violacea (*Columba*), 133
virgo (*Phlogœnas*), 147
" (*Tympanistria*), 142
vittatus (*Prion*), from Antarctic Regions, 50

Wady Babel Molook, 115
Wady el Sheikh, 77, 78 *et passim*
Wear of Flint Implements, 106
Winterbourn Stoke Down, Barrow on, 98

Page
winterfeldti (*Charadrius*), - - 66
wumizusume (*Synthliborhamphus*),
Head of, in Breeding Plumage, 52

Xiphidiopterus, - - - - 64

yerburii (*Heterographis*), - - - 39

Zapterus, - - - - - - 65
Zenaida, - - - - - - 137
Zenaidinæ, - - - - - - 137
Zenaidura, - - - - - - 137
Zodariidæ, Sokotran, - - - 41

Page
Zonibyx, - - - - - - 66
Zonifer, - - - - - - 64
Zonœnas, - - - - - - 129
Zonophaps, - - - - - - 128
Zosterops aureiventris, - - - 47
" *chlorates*, - - - 47
" *citrinella*, - - - 48
" *griseiventris*, - - - 48
" *palpebrosa*, - - - 47
Zosterops, feeding on *Vaccinium*, - 47
" On Three Rare and not hitherto Figured Species of, in the Derby Collection, - 47

ERRATA.

Page 9. For *Odontopeltis grantii*, read *O. granti.*
" 39. " *Heterographis yerburi*, " *H. yerburii.*
" 116. " *rufipennis*, " *rufipenni.*
" " " g.-brunneus, " g.-brunnea.
" " " minnime, " minime.
" " *Insert* inches *at close of paragraph, after* 1·2.

Bulletin No. 1 *issued* 18*th May*, 1899.
" *No.* 2 " 30*th September*, 1899.
" *Nos.* 3 and 4 " 20*th January*, 1900.

BRITISH MUSEUM NATURAL HISTORY

A Few Sets of the Flint Implements from the Wady el Sheikh may be had, by purchase or exchange, on application to the Director of Museums, William Brown Street.

The Bulletin of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums (**H. O. Forbes, LL.D.**),

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals; but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. HENRY YOUNG & SONS, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net per number (per post 2s. 8d. net), or to subscribers at 8s. net per volume (per post 8s. 8d. net), payable in advance.

Volume I. is now ready, illustrated with 33 engravings, 5 of which are **coloured by Hand,** cloth, extra, top edges gilt, 12s. 6d. net, per post 12s. 10d. net.

Volume II., Part 1, issued May, 1899, contains descriptions of new Birds, Reptiles, Scorpions &c., Butterflies, and Landshells, obtained on the recent Expedition to Sokotra.

Volume II., Part 2, issued September 30, 1899, contains descriptions of New Moths, Spiders, *Orthoptera*, and *Hemiptera* obtained in Sokotra.

AUGUST, 1900.
VOL. III. No. 1.

BRITISH MUSE
NATURAL H

Bulletin
of the
Liverpool Museums
Under the City Council.

CONTENTS.

The Expedition to Sokotra:

PAGE
X. Descriptions of the New *Micro-Lepidoptera*. By Lord WALSINGHAM, F.R.S. 1
XI. Descriptions of the New *Coleoptera*. By C. J. GAHAN, M.A. - - - 8
XII. Descriptions of the New *Hymenoptera*. By W. F. KIRBY - - - 13
Catalogue of the Lizard-tailed, the Toothed, and the Ostrich-like Birds, and of the Tinamous and the Divers in the Derby Museum. By HENRY O. FORBES, LL.D. . . . 25

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, SOUTH CASTLE STREET,
AND 23, PARKER STREET.
ISSUED 15th AUGUST.

NOTE.—The plates issued with this number will be described in the next number of the *Bulletin*.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. III. AUGUST, 1900. No. 1.

The Expedition to Sokotra.

X. Descriptions of the New Species of Micro-Lepidoptera.

BY THE RT. HON. THE LORD WALSINGHAM, M.A., LL.D, F.R.S.

Pyralidina.

Pterophoridæ.

Agdistis, *Hb.*

(1) Agdistis minima.

Antennæ brownish cinereous. *Palpi* very short, closely appressed to the face, the terminal joint scarcely visible at the end of the rather thickly clothed median joint; whitish cinereous. *Head* and *Thorax* whitish cinereous. *Fore-wings* whitish cinereous, thickly dusted with blackish scales along the costal and dorsal thirds, on the costa before the apex are three slight aggregations of the black scaling forming scarcely noticeable costal spots; the usual elongate semi-transparent triangle reaches to within one-third of the base, and is brightly iridescent; cilia whitish cinereous, speckled with black scales along their base. *Exp. al.* 12-14 mm. *Hind-wings* with a noticeable elongate mat of black scales near the base on the underside, terminating in a comb of separate black hair-scales along the lower margin of the cell; brownish grey, much speckled with black scaling along the dorsum*, slightly iridescent towards the costa; cilia whitish cinereous. *Abdomen* whitish cinereous. *Legs* whitish, profusely sprinkled with minute black scale-points.

---

* Some inconvenience occasionally arises in describing *Lepidoptera* from the fact that no single term has hitherto been used to express the angle so frequently formed on the dorsum of the fore or hind-wings in the direction of the base. On the hind-wing

Type ♂ (13358) Mus. Wlsm.

Habitat. Abd-el-Kuri Id. (1-3. XII. 98).

Tineina.

Gelechiadæ.

Onebala, *Wkr.*

(2) Onebala simplex.

Antennæ slightly serrate; pale fawn-ochreous, dusted with greyish fuscous above, the basal joint dark fuscous above. *Palpi* long, strongly recurved, smooth, the median joint somewhat flattened; pale fawn-ochreous. *Head* greyish. *Thorax* pale fawn-ochreous, smeared with greyish fuscous above. *Fore-wings* pale fawn-ochreous, slightly shaded with greyish fuscous, especially above the fold and before the apex and termen; with three blackish spots, the first on the cell before the middle, another in the fold straight below it, a third at the end of the cell; also four or five blackish dentate spots along the termen at the base of the greyish ochreous cilia which have a paler basal line. *Exp. al.* 11·5 mm. *Hind-wings* pale greyish, the central portion slightly iridescent; cilia brownish grey. *Abdomen* fawn-ochreous, with greyish fuscous shading. *Legs* pale cinereous.

Type ♂ (13361) Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3500 ft., 2. II. 99).

Hypsolophus, *F.*

(3) Hypsolophus granti.

Antennæ pale brownish testaceous, with some fuscous scaling near the basal joint. *Palpi* with the usual triangular tuft on the median joint, dark brownish externally, with a whitish line along its upper edge; the terminal joint white, speckled with black scales. *Head* and *Thorax* pale brownish testaceous. *Fore-wings* pale brownish testaceous, speckled with black; some short oblique fuscous streaks along the costa, and a few groups of similar scales about the middle and end of the cell, on the dorsum before the tornus and about the termen, with one erect black dorsal patch at one-sixth from the base (this patch, which is very distinct, occurs in one specimen only out of a series of five, but in one or two of the others it is indicated by a few dark scales in the same position; the ground-colour slightly varies either in the direction of paler brown or darker greyish testaceous, the shading on the termen being also variable in quantity, and the speckling of dark scales more or less grouped or tending to obliteration); cilia of the same colour as the wing-surface, slightly streaked with darker scales. *Exp. al.* 15-16 mm. *Hind-wings* with the termen slightly bisinuate; somewhat iridescent along the middle, brownish grey; cilia paler than the wing, and with a slender sub-

---

this angle is usually described as the abdominal angle, and the margin between this and the base is called the abdominal margin. I should propose for convenience of description that the word *flexus* be applied to the abdominal angle and to its equivalent when it occurs on the fore-wing; that the term *dorsum* should be limited to that portion of the margin which lies beyond it, except when no appreciable angle exists; and that the term *limbus* should be used for that portion of the margin lying between the flexus and the base. I have made use of these terms in the present paper.

ochreous line along their base. *Abdomen* brownish grey (varying to brownish testaceous). *Legs* pale brownish, with rather speckled fuscous shading on their outer sides,

Type ♂ (13363); ♀ (13364) Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3500 ft., 2. II. 99); Hadibu Plain (19-21. II. 99).

(4) Hypsolophus thoracella.

Antennæ cinereous, dusted with blackish scales. *Palpi* with the usual projecting triangular tuft on the second joint, pale cinereous along its upper edge, dark greyish fuscous, minutely speckled with chestnut-brown about its base, and becoming chestnut-brown to the apex along its lower half; terminal joint pale cinereous, sprinkled with blackish scales. *Head* dark greyish fuscous, face pale chestnut-brown, *Thorax* chestnut-brown. *Fore-wings* dark greyish fuscous, with a broad chestnut-brown streak from the base along the costa to a little beyond one-third; mottled along the extreme costa with fuscous, a small pale cinereous spot on the costa at its outer extremity, a larger pale cinereous spot occurring at the commencement of the costal cilia from which a faintly indicated pale band crosses to the tornus; from the dorsum close to the base arises an oblique streak of slightly raised scales reaching to the upper edge of the cell; at the end of the cell is a minute blackish spot, its inner and lower edge narrowly outlined with whitish scales; cilia greyish fuscous, with numerous pale brownish cinereous dentate points along their basal third, these extending around the apex and termen. *Exp. al.* 16 mm. *Hind-wings* trapezoidal; somewhat iridescent, brownish grey, the costa and limbus tending more to brown, the central portion of the wing tending to grey with bluish iridescence; cilia pale brownish grey. *Abdomen* and *Legs* greyish brown, the latter thickly sprinkled with fuscous externally; the underside of the abdomen whitish peppered laterally with fuscous scales.

Type ♀ (13362) Mus. Wlsm.

Habitat. Sokotra: Homhil (1500 ft., 26. II. 99).

Gelechia, *Hb.*

(5) Gelechia sarcochroma.

Antennæ pale cinereous, with fuscous bars across the upper side. *Palpi* with the median joint thickened with rough scales beneath; fleshy white, with two fuscous annulations on the terminal joint, a fuscous band on the outer side of the median joint at the base and some spots also near its apex. *Head* fleshy whitish. *Thorax* whitish flesh-colour, with slight fuscous shading. *Fore-wings* whitish flesh-colour, with slight fuscous shading; with four fuscous costal spots, the first at the base, the second at about one-sixth, the third at about the middle, the fourth at the commencement of the costal cilia; a broad dorsal streak, arising at one-fifth from the base, terminates at the upper edge of the cell a little beyond the second costal spot, some of the flesh-coloured scales between this and the base are distinctly raised; there are a few fuscous scales beyond the middle of the cell and one or two in the fold beneath them; cilia dull greyish ochreous, faintly speckled with fuscous and tinted with flesh-colour about the apex. *Exp. al.* 16 mm. *Hind-wings* shining pale bluish grey; cilia very long, pale brownish ochreous. *Abdomen* pale brownish ochreous. *Legs* somewhat hairy above; whitish ochreous, with two fuscous spots externally at the base of the hind tibiae.

Type ♂ (13360) Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3500 ft., 2. II. 99).

Hyponomeutidæ.

Batrachedra, *Stn.*

(6) Batrachedra atomosella.

Antennæ with the basal joint long, slightly thickened with appressed scales above; white, with minute blackish dots above. *Palpi* recurved, terminal and median joints of about equal length, the latter clothed with a rather long tuft of projecting scales; white, speckled with black; the terminal joint smooth, with three blackish annulations, the apex blackish. *Head* white, profusely speckled with black at the ends of the broad flattened scales. *Thorax* white, speckled with black, assuming the form of minute strigæ on the tegulæ. *Fore-wings* white, speckled with black, assuming the form of minute strigæ in a short series at the base of the costa; a second series from the base along the cell to about one-sixth, thence the remainder of the wing, nearly to the apex, is more or less profusely speckled with greyish fuscous having a tendency to run in transverse strigulæ; a slight shade on the middle of the costa is succeeded by a transverse shade-band at three-fourths, beyond which the acute apex of the wing is narrowly outlined with brownish ochreous bearing a reduplicated minute brownish ochreous oblique streaklet at the commencement of the costal cilia and another beyond it on the dorsum, a slender blackish line points to the apex in the intermediate space; cilia at the apex white, freely speckled with minute black scale-points, the cilia about the tornus greyish cinereous. *Exp. al.* 10 mm. *Hind-wings* and cilia greyish cinereous; the wings rather shining. *Abdomen* with an ochreous tinge on the basal half, whitish posteriorly; with an expansible hair-pencil posteriorly. *Legs* smooth, whitish, speckled with black externally.

Type ♂ (13376) Mus. Wlsm.

Habitat. Sokotra: Hadibu Plain (21. II. 99).

Scythris, *Hb.*

(7) Scythris denticolor.

Antennæ dirty brownish white. *Palpi* whitish, with a slight brownish tint externally. *Head* and *Thorax* brownish white. *Fore-wings* whitish, with a faint brownish tinge except about the apex; a small fuscous spot lies in the fold a little before the middle of the wing and another at the end of the cell; cilia white at the apex, suffused with brownish ochreous towards the tornus. *Exp. al.* 16 mm. *Hind-wings* whitish grey, with some faint brown scaling towards the apex; cilia light brownish ochreous. *Abdomen* whitish, shining silvery white beneath. *Legs* whitish.

Type ♀ (13377) Mus. Wlsm.

Habitat. Sokotra: Hadibu Plain (11-12. XII. 98).

(8) Scythris neurogramma.

Antennæ greyish brown. *Palpi* smooth, recurved; dirty whitish, shaded with greyish brown externally. *Head* and *Thorax* pale greyish brown, mixed with dirty whitish. *Fore-wings* dirty whitish, with greyish brown shading, usually broken into length-streaks corresponding to the spaces between the veins, separated by lines of the white ground-colour of variable width; a narrow greyish brown line along the upper edge of the cell is recurved around the outer end of the cell, while above and beyond it is a series of very short greyish brown oblique streaks not reaching the costa, and more distinctly separated in the direction of the costa than towards the apex and termen, where they are somewhat densely crowded; another narrow line follows the upper edge of the fold and the dorsal space below the fold is almost entirely suffused with pale greyish brown; cilia greyish brown, with a slight ochreous tinge, giving them a brighter appearance than the wing-markings. *Exp. al.* 12 mm. *Hind-wings* brownish grey, the cilia as in the fore-wings. *Abdomen* greyish, anal tuft whitish cinereous. *Legs* dirty whitish.

Type ♂ (13379) Mus. Wlsm.

Habitat. Sokotra: Hadibu Plain (11. XII. 98); Adho Dimellus (3,500 ft., 12. II. 99).

(9) **Scythris**, *sp.*

Habitat. Sokotra: Hadibu Plain (15. XII. 98)—Mus. Wlsm., 13375.

A single specimen in poor condition, but distinct from those now described.

(10) **Scythris** (?) **pectinicornis.**

Antennæ with a strong closely packed pecten on the basal joint; biciliate in both sexes (♂ 1-1½, ♀ rather less); pale cinereous. *Palpi*, ♂ recurved to the level of the vertex, the terminal joint shorter than the median; ♀ more slender and less recurved; whitish cinereous. *Head* and *Thorax* whitish cinereous. *Fore-wings* whitish cinereous, profusely dusted with brownish grey scaling, evenly distributed throughout, except a little beyond the middle of the fold where it appears somewhat concentrated; cilia whitish cinereous, becoming brownish ochreous about the tornus. *Exp. al.* ♂ 12, ♀ 11 mm. *Hind-wings* rosy grey; cilia pale brownish ochreous. *Abdomen* whitish cinereous. *Legs*, hind tibiæ pale brownish ochreous, hind tarsi whitish cinereous.

Type ♂ (13383); ♀ (13382) Mus. Wlsm.

Habitat. Sokotra: Hadibu Plain (15. XII. 98).

Genostele, *gen. nov.*

Type. **Genostele reniger,** *Wlsm.*

Antennæ (♀) ¾, simple, tending to slight serrations before the apex. *Ocelli* absent. *Maxillary Palpi* well-developed, porrect, inflected. *Labial Palpi* long, recurved, the median joint slightly roughened towards the apex; terminal joint scarcely shorter than the median, slender acute. *Head* and face clothed with loose scales. *Thorax* smooth. *Fore wings* four times as long as broad, elongate, costa slightly arched, the apex depressed, rounded, termen oblique. *Neuration*, 11 veins, (7 and 8 coincident) to costa; the other veins separate. *Hind-wings* not broader than the fore-wings, somewhat rounded at the apex, not emarginate. *Neuration*, 8 veins; 3 and 4 almost connate, 6 and 7 separate and almost parallel, 6 about equidistant from 5 and 7. *Abdomen* normal. *Legs*, hind tibiæ somewhat hairy above.

This genus differs from *Cerostoma*, Ltr., in the separation of veins 6 and 7 of the hind-wings and from *Plutella*, Schrk., in the remoteness of vein 6 from 5 as also in the coincidence of veins 7 and 8 of the fore-wings, but in general appearance and structure its affinity would be to these genera. The genus *Ancylometis*, Meyr., from Mauritius appears to approach *Genostele* in some respects, particularly in the coincidence of veins 7 and 8 of the fore-wings, but if Meyrick is correct in describing it as having vein 5 of the hind-wings approximated to, or coincident with 4, it must be regarded as sufficiently distinct.

(11) Genostele reniger.

Antennæ pale stone-ochreous, annulate with fuscous. *Palpi* with the median joint thickened with appressed scales which are somewhat loosened towards its apex beneath, pale stone-ochreous, profusely speckled with brownish fuscous; the terminal joint slender, similarly coloured. *Head* pale stone-ochreous, with a brownish fuscous streak along its middle above, this is continued through the anterior half of the pale stone-ochreous *Thorax* on which are also two parallel lateral dark fuscous streaks. *Fore-wings* pale stone-ochreous, speckled with brownish fuscous, a narrow dark fuscous streak along the base of the costa, with another beneath it, parallel to the limbus, but not extending beyond the flexus; at the base of the cell is an elongate reniform patch, outlined with dark fuscous, extended to about one-fifth and touching at its outer extremity the transverse reniform patch, which covering the whole width of the cell, extends downwards across the fold nearly to the dorsum; this is separated from a third reniform patch occupying the end of the cell and extending a little below it; these patches are all narrowly outlined with dark fuscous (and from indications afforded by a second specimen—presumably of the same species—will be found in some varieties to be more or less strongly filled in with dark brownish fuscous); above the outer patch is a dark fuscous costal shade before the commencement of the cilia; a group of dark fuscous scales also occurring before the apex midway between the costa and termen, and accompanied by some profusion of brownish fuscous speckling which extends along the termen, and is strongly repeated throughout the pale stone-ochreous terminal and apical cilia. *Exp al.* 19 mm. *Hind-wings* greyish; cilia pale brownish cinereous. *Abdomen* brownish ochreous. *Legs* pale brownish cinereous, the tarsi speckled with brownish scales.

Type ♀ (13368) Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3500 ft., 2-3. II. 99).

Prays, *Hb.*

(12) Prays (?), *sp.*

Habitat. Sokotra: Adho Dimellus (3500 ft., 11. II. 99)—Mus. Wlsm. 13370.

Mieza, *Wkr.*

(13) Mieza (?) inornata.

Antennæ fusco-cinereous. *Palpi* porrect, slender; hoary whitish with some fuscous scales externally. *Head* and *Thorax* dirty whitish. *Fore-wings* dull greyish white, the veins and cell narrowly marked out by lines of brownish grey, the costa and the dorsum beneath the fold slightly suffused with the same; cilia hoary whitish, sprinkled with brownish grey atoms. *Exp. al.* 12 mm. *Hind-wings* dirty whitish cinereous; cilia whitish cinereous. *Abdomen* brownish grey. *Legs* whitish cinereous; the tarsi slightly shaded.

Type ♀ (13374) Mus. Wlsm.

Habitat. Sokotra: Hadibu Plain (11. XII. 98).

Tortricidæ.

Olethreutinæ.

Cryptophlebia, *Wlsm.*

(14) Cryptophlebia (?) socotrensis.

Antennæ greyish fuscous, the basal joint tawny reddish. *Palpi* conical, extending more than the length of the head beyond it; tawny reddish, the apex of the terminal joint slightly fuscous. *Head* and *Thorax* tawny reddish, the latter slightly tufted posteriorly. *Fore-wings* tawny reddish, with closely packed transverse wavy lines of sericeous mottling arising from the costa and traversing the whole width of the wing, leaving a faint indication of two tawny reddish spots at the outer angles of the cell; the extreme base only appears to be free from these sericeous wave-lines, and the extreme edge of the costa is very narrowly touched with ochreous [what remains of the cilia is tawny reddish]; the underside is tinged with ochreous throughout, and shows a faint indication of greyish fuscous mottling, especially around the costa and termen. *Exp. al.* 22 mm. *Hind-wings* brownish fuscous, cilia slightly paler; underside with a faint indication of greyish fuscous mottling especially around the costa and termen. *Abdomen* brownish fuscous. *Legs* pale greyish ochreous, the hind tarsi transversely shaded with brownish fuscous.

Type ♀ (13371) Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3,500 ft., 12. II. 99).

Tortricinæ.

Archips, *Hb.*

(15) Archips (?) socotranus.

Antennæ cinereous, shaded with brown (or testaceous). *Palpi* porrect, conical, stretching twice the length of the head beyond it, thickly clothed above with appressed scales; dark rust-brown (or testaceous). *Head* rust-brown (or testaceous). *Thorax* fawn-brown (or testaceous). *Fore-wings* fawn-brown (or brownish testaceous), with a faint indication of a darker reddish (or testaceous) oblique fascia from before the middle of the costa, and an ante-apical costal patch [in the darker of the two specimens (13373) there is a slight outline of a basal patch—in the ♂ these markings may be expected to assume a more pronounced appearance]; the surface of the wing is somewhat shining, and thickly speckled with scarcely darker spots in transverse sinuate lines (visible only with the light striking the wings at a suitable angle); cilia along their base chestnut brown, except around the tornus, greyish cinereous on their outer half and at the tornus; faintly reticulated along the costa and around the termen on the underside. *Exp. al.* 22-23 mm. *Hind-wings* somewhat incised below the apex and near the flexus; shining brownish grey, strongly iridescent towards the base and paler in the costal that in the dorsal region, a slight reticulation of darker scales about the apex and on the base of the cilia around it; cilia pale shining brownish grey; underside faintly reticulated along the costa and around the termen. *Abdomen* shining greyish ochreous (or pale brownish grey). *Legs* shining, pale brownish cinereous.

Type [= Cotypes ♀ ♀ (13372-3)] Mus. Wlsm.

Habitat. Sokotra: Adho Dimellus (3500 ft., 11-12. II. 99).

XI. Descriptions of the New Genera and Species of Coleoptera.

By C. J. Gahan, M.A.

Melyridæ.

(1) Melyris insularis.

Viridis, breve sparseque setosa; abdomine pedibusque et articulis quinque vel septem ultimis antennarum nigris; capite prothoraceque haud profunde alveolato-punctatis, hoc utrinque carinato, supra sat valde convexo et in medio leviter sulcato, lateribus ab apice ad medium paullo divergentibus deinde ad basin fortius divergentibus, angulis posticis lateraliter prominentibus; elytris crebre fortiterque punctatis, utrisque lineis tribus et margine suturale elevatis. Long. (cap. exclus.). 7-7½ mm.

Habitat. Abd-el-Kuri.

Tenebrionidæ.

(2) Zophosis undulata.

Z. æquali (Waterh.) affinis, sed paullo latior, capite in vertice minus crebre punctulato; prothorace minus crebre sed distinctius punctulato; elytris longitudinaliter undulato-rugosis. Long. 7, lat. 3½ mm.

Habitat. Abd-el Kuri. Two examples taken on Feb. 22nd, 1899.

This species is closely allied to *Zophosis æqualis*, Waterh., but is relatively broader, and is easily distinguished at first sight by the slightly raised and obtuse undulate ridges running along the elytra. It differs also in having the upper part of the head less closely punctulate, and the pronotum distinctly but rather sparsely punctulate.

(3) Histeromorphus undatus.

H. plicato (Kraatz) affinis et sub-similis sed differt clypeo antice fere recte truncato vel vix evidenter cinuato, prothoracis lateribus latius marginatis, antice a basi fortius convergentibus; elytris transversim magis regulariter plicatis. Long. 8½-11, lat. 6½-8 mm.

Habitat. Abd-el-Kuri. Ten examples captured, Dec. 22nd, 1898, and Feb. 22nd, 1899.

In size and general form this species somewhat closely resembles *H. plicatus* Kraatz, but may be easily distinguished from it by the following characters. The clypeus is almost straightly truncate or but very feebly sinuate in front, whereas in *H. plicatus* it is arcuately emarginate; the sides of the prothorax have a broader margin, and converge more strongly in a more regular arcuate curve from the base to the apex; the elytra are more regularly plicate in wavy lines running parallel to one another in a transverse direction.

(4) Rhytidonota exigua.

Nigra, sub-opaca; capite dense punctulato; prothorace dense sed minus fortiter punctulato, quam latitudine basis vix longiore, lateribus ante medium leviter rotundatis, deinde ad basin apicemque convergentibus; elytris ovatis, vage minute punctulatis, supra sub-sulcatis, antennis dense punctulatis,

medium prothoracis vix superantibus, articulo 3° quam 2° sesqui-longiore, articulo 4° quam 2° vix breviore. Long. 7½-8½, lat. (ad med. elytrorum) 3¼-3½ mm.

Habitat. Sokotra: Homhil, East Sokotra (alt. 1500-3000 ft.).

Head densely punctulate, antennæ scarcely reaching beyond the middle of the pronotum, with the third joint about half as long again as the second, the fourth appreciably shorter than the second, the fifth and following joints gradually and but very slightly decreasing in length, and the eleventh narrower than the tenth. Prothorax densely and minutely punctulate, slightly rounded at the sides, widest a little in front of the middle, and thence narrowed to the base and apex, being a little narrower across the apex than at the base, where the width is almost equal to the length of the pronotum along the middle. Elytra ovate, about two and a half times as long as the pronotum, finely and rather sparsely punctulate, and each impressed along the disk with five or six shallow and nearly obsolete grooves.

(5) **Rhytidonota socia.**

Precedenti similis et affinis, sed antennis longioribus, minus dense punctulatis, basin prothoracis attingentibus, prothorace lateraliter minus rotundato, ad basin quam longitudine paullulo latiore.

Habitat. Sokotra: Adho Dimellus (alt. 3500-4500 ft.).

This species has the same dull black colour as the preceding species, which it closely resembles also in size and shape. It differs from it as follows:—the antennæ are longer, reaching quite to the base of the pronotum, less closely punctulate, and with the second joint relatively shorter, being less in length than the fourth joint and little more than half as long as the third; the pronotum is more parallel-sided, and its width across the base is a little greater than its length along the middle.

(6) **Rhytidonota (?) tibialis.**

Capite prothoraceque confertissime sub-rugosoque punctatis; prothorace quam latitudine maxima (ante medium posita) paullo longiore, lateribus ante medium paullo rotundatis, deinde versus basin convergentibus; elytris ovatis, utrisque longitudinaliter 10-costatis intervallis transversim sub-rugosis et inæqualiter punctatis; prosterno pone coxas anticas deflexo et ad extremitatem horizontaliter directo; tibiis extus sulcatis; antennis basin prothoracis fere attingentibus, articulo 2° quam 3° paullo breviore, et quam 4° paullo longiore, articulo 4° ad 8^{um} gradatim brevioribus, 9° ad 11^{um} brevibus. Long. 11-12, lat. (ad med. elytrorum) 4-4.2 mm.

Habitat. Abd-el-Kuri.

This species is very distinct from the two preceding; and, in certain of its characters, such as the form of the prosternal process, and the presence of a groove along the outer (or dorsal) face of each of the tibiæ, it differs from all other known species of *Rhytidonota*.

(7) **Eusyntelia opacicollis.**

E. ebeninæ (Waterh.) proxime affinis; capite prothoraceque dense sat fortiter punctulatis et opacis, pronoto quam latitudine basis paullo longiore; elytris sulcatis, interstitiis convexis sat dense punctulatis vix nitidis; antennis basin prothoracis paullulo superantibus, articulo 3° quam 2° duplo longiore. Long. 12-15, lat. (ad med. elytrorum) 4½-6 mm.

Habitat. Sokotra: Jena-agahan (alt. 1200 ft.), and Hadibu Plain.

Head and pronotum closely and distinctly punctulate and opaque, the punctures on the head being somewhat larger than those on the pronotum. Pronotum widest between the middle and the anterior margin, its sides there being distinctly arcuate, while from the middle to the base they are almost rectilinearly convergent; its length along the middle a little greater than its width across the base. Elytra rather strongly sulcate, with the interstices convex and somewhat closely punctulate.

This species is most nearly allied to *E. ebenina*, Waterh., which it resembles in size and form, but from which it may be distinguished at first sight by the dulness of its whole upper surface, the head and pronotum especially being closely and very distinctly punctulate, while the same parts in *E. ebenina* are very sparsely and minutely punctulate and the surface highly polished. In the latter species also the length of the pronotum is only about equal to, or scarcely appreciably greater than its width across the base, and is, therefore, relatively a trifle shorter than in *opacicollis*. *Eusyntelia balfouri*, Waterh., differs from both of these species by its shorter antennæ and its broader pronotum, the width of the latter across the base being distinctly greater than its median length; in the figure of this species (Proc. Zool. Soc. 1881, pl. 43, fig. 5) the form of the pronotum is inaccurate and more nearly represents the shape occurring in *ebenina* and *opacicollis*.

(8) Adelostoma granti.

Oblongo-ellipticum, depressum, nigrum; capite antice arcuatim emarginato supra tuberculis quatuor parvis cariniformibus instructo; prothorace paullo ante basin valde abrupteque angustato, supra carinis duabus longitudinalibus instructo; utroque elytro carinis tribus instructo, carina interiore ad medium late interrupta, carina intermedia postice abbreviata. Long. 6, lat. $2\frac{2}{3}$ mm.

Habitat. Abd-el-Kuri.

Helopinæ.

Deretus, *gen. nov.*

This genus seems to be most nearly allied to *Eubœus*, Boield., from which it differs chiefly in the shape of the pronotum. The pronotum is narrowed at the base, and at the lateral margin on each side between the base and the middle there is a short blunt tooth, behind which the margin is rather deeply sinuate, while between it and the middle there is a feebler sinuation. The clypeus is broadly rounded in front, not truncate nor emarginate as in *Eubœus*; the antennæ are a little shorter and more slender than in the latter genus, and the proximal joints of the hind tarsi somewhat shorter. In other points of structure the agreement between the two genera is fairly complete.

(9) Deretus denticollis.

Piceo-niger, nitidus. Capite prothoraceque crebre sat fortiter punctatis, hoc transverso, ad basin angustato, utrinque inter medium basimque bisinuato, et inter sinus uni-dentato; elytris sat valde punctato-striatis, interstitiis leviter convexis, sparse punctulatis.

Habitat. Sokotra: Jena-agahan (alt. 1200 ft.).

Scarabæidæ.

(10) Cheironitis socotranus.

C. scabroso (Fab.) sub-similis, supra fusco-testaceus, capite viridi-suffuso, sat dense granuloso; elytris tuberculis carinisque viridibus instructis; corpore subtus pedibusque viridi-æneis, femoribus subtus in medio metasternique lateribus testaceis. ♂. Processu prosterni sat breve, ad apicem anguste emarginata, femoribus anticis ultra medium longe mucronatis; coxis intermediis utrisque bispinosis. Long. 12½, lat. 7 mm.

Habitat. Sokotra: Dahamis (alt. 350-1000 ft., XII. 98).

(11) Oryctes vicinus.

O. monoceroti (Oliv.) affinis sed minor et pronoto elytrisque relative latioribus et brevioribus. Long. 32, lat. 15 mm.

Habitat. Sokotra: Hadibu Plain, XII. 98. One male example of this species was obtained.

This example is about equal in size to small males of *Oryctes boas*, Fab., and in general form somewhat resembles the latter species; but in structure and in sculpture it seems to be more nearly allied to *O. monoceros*, Oliv. The clypeus is bidentate, with the emargination between the teeth rather deep, and lined with reddish-tawny hairs; the cephalic horn in size and shape resembles that of *O. monoceros*; the prothorax is relatively wider than in *C. monoceros*, and the disk somewhat more excavate anteriorly; the elytra are shorter and broader in proportion, the sides more rounded, and the punctuation a little stronger and less dense, than in *O. monoceros*; the propygidium is very finely striate transversely over the median area, the striae appearing to be more regular and continuous than in *O. monoceros*.

Elateridæ.

(12) Alaus sulcicollis.

Piceus, supra albo-tomentosus, subtus (pectore medio albescente excepto) fulvo-brunneis; capite supra fulvo-brunneis; pronoto albescente, quoque maculis fulvis vel fuscis notato, medio longitudinaliter sat late sulcato, sulco paullo ante medium evanescente, et postice fere ad basin prolongato; elytris albo-tomentosis basi fulvo-brunneo dense variegatis, utrisque prope medium maculis fuscis notatis, apice truncatis extus rotundatis et ad suturam breviter mucronatis.

♂ minor, elytris fusco-lineatis. ♂ Long. 21, lat. 6¾ mm; ♀ Long. 28, lat. 9½ mm.

Habitat. Sokotra: Hadibu Plain, 10-15. XII. 98, ♂ and ♀; Homhil, E. Sokotra (alt. 1500-3000 ft., 17-24. VI. 99). ♀.

Covered above with a dense scaly pubescence which is for the most part whitish in colour, but on the head and the basal declivity of the elytra is of a dingy fulvous or brownish tint interspersed with small whitish patches; the pubescence on the underside is fulvous-brown, except over the middle of the metasternum where it has a whitish colour; the pronotum is sometimes marked with a few fulvous or brownish patches, and each of the elytra presents one or two oblong fuscous spots near the middle, and a few dark patches along the outer margin. Prothorax with each side slightly rounded anteriorly, and rather strongly sinuate posteriorly, the disk with a median groove extending from a little before the middle almost up to the base. The latter character distinguishes this species from all others belonging to the genus; for although there is a median groove present on the pronotum in *A. excavatus*, Fab., the groove is abruptly limited behind by a triangular ridge or tubercle interposed between it and the median lobe of the basal margin. In the present species there is no such ridge, and the median groove extends downwards behind to the slightly arched middle lobe of the base.

In both sexes, the last ventral segment is broadly truncate behind. The one male specimen captured is much smaller than either of the two females, and differs further in having the elytra marked with a number of fuscous lines.

Cerambycidæ.

(13) Œme fusca.

Œ. lineari (Harr.) sub-similis sed paullo latior, oculis minus profunde emarginatis, antennis subtus minutius spinosulis, abdomine breviore. Long. 13-16, lat. 2$\frac{2}{3}$-3$\frac{1}{2}$ mm.

Habitat. Sokotra : Dahamis (alt. 350-1000 ft., XII. 98).

Dark brown in colour, varying in parts to brownish testaceous, covered with a faint greyish pubescence. Antennæ of the male more than half as long again as the body ; those of the female a little longer than the body ; joints third to fifth shortly spinose underneath. Elytra closely punctured, the disk of each marked with two raised lines.

Notwithstanding its habitat, this species seems to be correctly placed in the genus *Œme*, and to be not very distantly allied to ths North-American species *Œ. linearis* from which it is chiefly distinguishable by its darker colour, somewhat broader form, less deeply emarginate eyes, and less strongly spinose antennæ.

(14) Idactus granti.

Pube cinerea, griseo-brunneo-varia dense obtectus ; elytris postice lateraliterque fusco-nebulosis, utrisque ad medium plaga obliqua albo-grisea ; prothorace lateraliter valde tuberculato, disco vix pone medium tuberculo parvo conico instructo, et ante medium linea bisinuata notato, basi apiceque transversim fere recte bilineato ; utroque elytro prope basin tuberculis duobus parvis instructo. Long. 10-15, lat. 4-6 mm.

Habitat. Sokotra : (Dahamis, Jena-agahan, Hadibu Plain and Homhil).

Allied to *I. maculicornis*, Gahan, and differing from it as follows:—Pubescence much paler in colour ; elytra longer and less convex, without tufts of hairs, and with the two tubercles near the base of each much smaller ; pygidium of the female without the two tufts of tawny hairs which are present in the female of *maculicornis*.

Sybrinus, *gen. nov.*

Head slightly transverse in front, feebly concave above between the antennal tubercles ; eyes coarsely facetted, deeply emarginate with the lower lobes slightly transverse. Antennæ of the male about half as long again as the body, those of the female about reaching to the apex of the elytra, fourth joint equal in length to the second and third united, and scarcely longer than the first, fifth shorter than fourth, sixth to eleventh gradually diminishing in length. Prothorax unarmed, and slightly rounded at the sides, its length about equal to its width across the base. Elytra broader than the prothorax, nearly parallel-sided in their anterior two-thirds, and thence narrowed to the apex. Legs rather short ; with the femora stout and clavate ; tibiæ of the middle pair notched on the outside below the middle, those of the hind pair sinuate on the outer border below the middle, and furnished with a row of short stiff setæ ; tibiæ of the anterior pair with a finely serrate ridge along the outer border ; claws of the tarsi widely divergent. Prosternal process slightly arched in the middle, rather widely dilated behind the coxæ. Mesosternal process with a small angular dilatation on each side near its extremity. Intermediate coxal cavities almost completely closed in externally.

This genus belongs to the group Ptericoptides, and seems best placed near *Sybra* Pasc., which it approaches in general form and in many of its structural characters, differing chiefly in its more widely divergent tarsal claws, in its relatively longer scape and shorter third joint of the antennæ, and in the presence of a serrate ridge on the outer border of the anterior tibiæ.

(15) Sybrinus commixtus.

Pube fulvo-grisea, fusco et cinereo plagiata obtectus; antennis fusco-annulatis; prothorace supra plaga oblonga sub-glabra fusca, crebre sat valde punctato; elytris plaga cinerea obliqua et macula fusca utrinque paullo ante apicem. Long. 11, lat. 3½ mm.

Habitat. Sokotra: (Adho-Dimellus, alt. 3500-4500 ft, II. 99).

Closely covered with a fulvous or fulvous grey pubescence. Disk of prothorax with a broad sub-glabrous fuscous band, closely and rather strongly punctured, extending along the middle from the base to the apex. Elytra with small fuscous spots anteriorly and along the sides, each with a large oblique cinereous patch, followed by a lunate blackish brown spot, placed a little in front of the apex; the elytra are punctured, with the punctures visible only where the pubescence has been rubbed away, and each shows indications also of three or four slightly raised longitudinal lines.

XII. Descriptions of the New Species of Hymenoptera.

By W. F. Kirby.

A. *Hymenoptera from Sokotra.*

Hymenoptera Terebrantia.

Entomophaga.

Chalcididæ.

Leucospidinæ.

Leucospis, *Fabricius.*

(1) Leucospis insularis.

Long. corp. 12 mm; long al. ant. 9 mm.

Female. Very thickly and coarsely punctured, clothed with a thin grey pile. Head black, face more finely punctured than the vertex; antennæ, including scape, and mandibles, except at the tips, red; joints 8 and 9 blackish above, and 6 and 7 more slightly. Pronotum red, with a transverse yellow line in front, interrupted in the middle; behind it are two distinct transverse unicolorous carinæ, besides the terminal one. Mesonotum black, with the sides red, and with two red central bands, broadest behind, and not continued forward to the base. Scutellum black, the front angles marked with red, and a yellow transverse sub-terminal line, edged behind with red. Postscutellum yellow in the middle, and red at the sides. Median segment red. Tegulæ and a spot below red. Mesopleura black in front, and red behind. Legs red, middle tibiæ yellow above, hind femora blackish in the middle, and with a yellow spot at the base outside; about six moderate-sized black teeth are visible on the outside. Abdomen red, the first and second segments with a sub-terminal transverse yellow line, edged behind with black. Terminal segment not enlarged, ovipositor black, red in the middle, recurved to a little more than the hinder third of the abdomen. Wings smoky hyaline.

Sokotra: Jena-agahan (1200 ft., 12. I. 99); one specimen.

A species very dissimilar to any other known to me.

Cryptidæ.

Cryptus, *Fabricius.*

(2) Cryptus pulcherrimus.

♂ Long. corp. 18 mm.; long. al. ant. 13 mm.

♀ Long. corp. 15-22 mm.; cum. ovip. 23-32 mm.

Head and thorax mahogany brown, lower parts of face yellowish; abdomen fulvous, segments after the 3rd mostly blackish; legs fulvous, hind tibiæ yellowish in the inside in the male, and tipped with blackish in the female; wings yellowish subhyaline towards the base, and rich iridescent violet towards the margins, a trace of which colour is sometimes visible on the hind coxæ. Head and thorax thickly and regularly punctured; median segment rugose-punctate; scutellum, postscutellum, and abdomen nearly smooth, the latter clothed with very short hair. Clypeus very long, oblong, the sides depressed, especially in the middle. Basal segment of the abdomen very long, slightly expanded beyond the middle, where the stigmata are placed; 2nd segment about ¼ shorter than the first, the basal ¼ with parallel sides, the rest widening considerably to the extremity in the ♀, but very little in the ♂; the remaining joints shorter, closely connected, and with nearly parallel sides in the male, and forming a long oval in the female.

Sokotra: Goahal Valley (16. I. 99); Jena-agahan (1200 ft., 15. I. 99); Adho Dimellus (3500 ft., 8. II. 99); Dahanus (350 ft., 24. XII. 98); six specimens.

Not closely allied to any specimen in the British Museum.

Fossores.

Scoliidæ.

Campsomeris *St. Fargeau.*

(3) Campsomeris socotrana.

Long. corp. 17 mm.; exp. al. 29 mm.

Female. Black, face, thorax, and basal half of the segments of the abdomen rather thickly punctured; the vertex and middle of the pronotum, and of the scutellum and postscutellum nearly smooth; face sparingly clothed with fulvous hair, especially round the base of the antennæ; prothorax, ridges of the pleura, and sides of metanotum with fulvous hair;

abdomen with hair on the base and sides of the first segment, and a band of hair at the extremity of the four following segments, of the same colour. Legs red, clothed with very long tawny hair; femora black nearly to the extremity, with the cultrate edge beneath the four hind femora bright red. Fore-wings clouded hyaline, yellowish towards the base, and iridescent violet beyond the middle.

Sokotra: Adho Dimellus (3500 ft. 18. II. 99); two specimens.

Tiphia, *Fabricius.*

(4) Tiphia crassinervis.

Long. corp. 14 mm.; long. al. ant. 9 mm.

Female. Black, shining, thickly and closely punctured, abdomen with long, fine, outstanding whitish pubescence; antennæ, and tibiæ and tarsi red or reddish, wings smoky hyaline, the nervures black, very thick. Median segment with three longitudinal carinæ, expanding in front, the space between smooth; the apex is vertically truncated. Basal segment of the abdomen rounded in front, scarcely constricted behind.

Sokotra: Adho Dimellus (3500 ft., 4-8. II. 99); three specimens; Homhil (1500 ft.), E. Sokotra, 25. I. 99; one specimen.

Very distinct from any other species before me, by the incrassation of the nervures.

Sphegidæ.

Sphex, *Linn.*

(5) Sphex erebus.

Long. corp. 20-25 mm.; long. al. ant. 14-17 mm.

Deep black; face, from above the antennæ to the extremity of the clypeus, clothed with white hair slightly tinged with yellow; clypeus long, with parallel sides, or, if anything, slightly narrowed at the lower extremity; hair on the head above and behind and on the thorax, petiole and coxæ black; thorax finely and uniformly punctured, scutellum notched in the middle, postscutellum with two smooth and shining prominences above, with a groove between, median segments transversely striated; legs black, the middle and hind femora and tibiæ more or less red, wings hyaline, black at the base, and dusky at the tips.

Sokotra: Hadibu Plain, 11-13. XII. 98; five specimens.

Pseudapis. *Gen. nov.*

Head as broad as the thorax. Antennæ with the 2nd joint transverse, 3rd shorter than the following ones, which are about twice as long as broad till towards the extremity. Eyes converging beneath, ocelli on the vertex, the two hinder ocelli about opposite the hinder part of the eyes, and about as wide apart as each is distant from the eye; central ocellus placed just in front of the others. Pronotum linear; median segment short, rounded, slightly depressed in the middle in front. Tegulæ enormous, extending before and behind the bases of the wings. Legs moderately long and slender and clothed with a fine pile; four front tibiæ spined at the extremity; hind tibiæ ending in the male in a huge broad cultrate appendage; in the female unarmed. Tarsi long and slender, all the joints spined beneath, except, perhaps, the front tarsi in the female; first joint of tarsi as long as the succeeding ones together, terminal joint of the middle tarsi ending in a hairy pad, somewhat resembling that in some bees, such as *Podalirius acervorum.* Wings with one radial and three cubital cells, the radial cell broad, obtuse at the extremity, and not appendiculate ; first radial cell oblong or sub-oval, as long as the third cell in the male, but shorter than in the female ; second cell nearly square, smaller in the male than in the female, third much narrower above than below ; first recurrent nervure received close to the extremity of the second radial cell ; second at about ¼ of the extremity of the third cell.

This is a very strange insect, which has the appearance of a bee, although the long slender cylindrical tarsi seem to exclude it from the bees. I am inclined at present to refer it to the *Sphegidæ*, in which group it may perhaps form the type of a new sub-family.

(6) Pseudapis anomala.

Black, face below the antennæ, hinder orbits, pectus, hind borders of scutellum, postscutellum, and abdominal segments, base of abdomen, and legs in front covered with white pubescence or pile. Antennæ, tegulæ and legs rufo-testaceous, femora, more or less of tibiæ above, and terminal tuft on middle tarsi, black ; antennæ thickly and finely punctured ; the body thickly punctured almost everywhere, the front of the abdominal segments less closely than the thorax, because the punctures are much larger ; hinder part of the abdominal segments more finely punctured, or smooth.

Moukaradia (600 ft., 15. I. 99) ; two specimens ♂ ; ♀. Homhil, E. Sokotra (1500 ft., 26. I. 99).

(7) Tachytes trivittatus.

♂ Long. corp. 10 mm. ; exp. al. ant. 8 mm.
♀ Long. corp. 15 mm. ; exp. al. ant. 11 mm.

Black, sides of fore and hinder orbits clothed with silvery pile, legs black, femora and tibiæ clothed with very fine whitish pile, tarsi reddish, thorax closely and finely punctured, median segment somewhat more coarsely punctured, bordered with whitish pubescence, first three segments of abdomen with terminal band of pale blue pile. Wings purplish hyaline, darkest on the margins.

Sokotra : Homhil, East Sokotra (1500 ft., 21. I. 99) ; and Addah Valley, East of Hadibu Plain, 29. I. 99 ; three specimens.

Notogonia, *Costa.*

(8) Notogonia bicolor.

Long. corp. 8 mm. ; long. al. ant. 6 mm.

Female. Black, tegulæ reddish, legs, except the black coxæ and trochanters, red ; tarsi a little brownish above. Median segment about as long as the preceding part of the thorax ; dull, thickly punctured, the rest of the body shining. Wings clear hyaline.

Sokotra : Adho Dimellus (3000 ft., 18. II. 99) ; one specimen.

A very distinct species.

Stizus, *Latreille.*

(9) Stizus scutellaris.

Long. corp. 19 mm. ; long. al. ant. 14 mm.

Female. Black, varied with yellow, and slightly with red. Head black above the antennæ ; back of head, and tips of mandibles also black. Vertex with the inner orbits red, and with two slightly diverging yellow marks between; hinder orbits yellow, very widely so beneath, but ending in a detached dot above, at the level of the eyes. Antennæ red, scape beneath, and face yellow, the latter clothed with a fine white pile; labrum somewhat tumid, reddish in the middle, the lower edge concave below. Thorax mostly black, pronotum red in front, and bordered with yellow behind. Mesonotum bordered with red on the sides; tegulæ red; mesopectus black, clothed with whitish hair, and with two yellow spots, one behind the other, and the first largest, under the base of the fore-wings. Scutellum and postscutellum, yellow; behind is a curve, broadest in the middle on the median segment; beneath this, on each side, is a moderately short and broad red line. Abdomen with the first segment red above, bordered in front, and more narrowly behind, with black; a large yellow spot on each side. Segments 2-4 with broad yellow lateral bands, bordered before and behind, and broadly interrupted in the middle, with black; and bordered on the sides below with red; the median black space on the second segment is also marked with red on the sides and more broadly behind. Terminal segments mostly red above; fifth segment with a large oval yellow spot on each side. Ventral surface red, the segments narrowly edged behind with yellow, segments 3-5 black at the base, and segments 2 and 3 with a large yellow spot on each side. Legs reddish; tibiæ and tarsi yellow above. Wings of a slightly yellowish hyaline, the large nervures towards the base and costa reddish, the others black.

Sokotra: Dahamis, 19. XII. 98; one specimen.

(10) Stizus adelphus.

Long. corp. 16 mm.; long. al. ant. 14 (?) mm.

Male. Head black above and behind, the rest yellow. Space between the antennæ and eyes yellow, ending in a small square semi-detached spot on each side of the frontal ocellus. Inner orbits narrowly yellow, ceasing at the level of the eyes, but connected with each other by a row of 4 small red spots; a yellow spot near the base of the back of the head. Face yellow, clothed with a very fine whitish pile, tips of mandibles, and the parts behind black. Pronotum black at the base, red above, and bordered behind by a slender yellow line. Antennæ red, four joints before the last two blackish above. Thorax black, with the sides in front of the wings yellow, as well as an adjoining spot on the pleura; tegulæ reddish; scutellum broadly reddish behind, postscutellum bordered behind with yellow; median segment with a short curved yellow streak marked with reddish behind towards the base on each side. Abdomen yellow, first segment red, bordered behind with black, which extends slightly to the base of the second segment; second segment broadly bordered with black behind; third segment bordered behind with red, preceded in the middle by black. Legs red, coxæ and trochanters black. Wings yellowish hyaline, with reddish nervures, the radial cell clouded.

Sokotra: Hadibu Plain, 14. XII. 99; one specimen.

Rhopalidæ.

Rhopalum, *Kirby.*

(11) Rhopalum quadricolor.

Long. corp. 12 mm.; long. al. ant. 8 mm.

Female. Dull black; head, clypeus and labrum clothed with bright silvery pile; back of head more sparingly. Scape of antennæ yellow;

mandibles red. Thorax with the collar, a spot below, and two nearly united spots on the scutellum, yellow; tegulæ red; legs red, middle femora with a short black stripe below, followed by a yellow one; hind femora with a black stripe below; hind tibiæ with a yellow stripe behind. Four front tibiæ with a small yellow dash at the base. Abdomen black, the first segment forming a short, broad petiole at the base, and expanded at the extremity, the rest forming a regular oval; 1st and 2nd segments with short transverse blood-red lateral stripes near the extremity of the first, and the middle of the second connected below; 3rd with longer ones near the base; 4th uniform black, the rest reddish, except the upper part of the 5th. Wings brownish hyaline, narrowly infuscated along the costa of the fore-wings.

Sokotra: Dahamis, XII. 98; one specimen.

Cerceris, *Latreille*.

(12) Cerceris lobaba.

Long. corp. 10 mm.; long. al. ant. 7 mm.

Female. Head, thorax and abdomen covered with large depressed punctures; head black, antennæ red, blackish above, mandibles red, yellow at the base, and black at the tips; face clothed with silvery pile; thorax black, a curved yellow line on the postscutellum, tegulæ and legs red, a black dash on the inside of the hind femora at the tip; abdomen red, first segment subquadrate, and only half the width of the second; incisions, base of 1st segment, and base of 5th blackish; 2nd segment with a yellow spot on each side before the extremity; 3rd and 5th with yellow bands, that of the former terminal, expanded on the sides, but interrupted in the middle above; that of the latter shorter, sub-terminal narrower, but continuous; pygidium black, lateral carinæ yellow. Wings clouded hyaline, fore-wings infuscated at the tips.

One specimen from Homhil, E. Sokotra (1500 ft.), 18. I. 99.

Vespidæ.

Eumeninæ.

Eumenes, *Latreille*.

(13) Eumenes granti.

Long. corp. 20 mm.

Female. Head black behind, and dark brown above, as far as the antennæ, which are red, brownish above towards the extremity. Hinder orbits narrowly yellow; space between the antennæ, sinus in the inner orbits of the eyes, and face below, as far as the extremity of the clypeus, yellow; lower mouth parts reddish. Clypeus longer than broad, slightly concave at the base, and marked with a black dot below each antenna; below the eyes, the sides converge obliquely towards the extremity, which is more deeply concave than the base. Pronotum yellow, narrowly and irregularly edged below with reddish; a red dot in front of the base of the wings. Mesonotum dull black; tegulæ black, bordered below with red; a short yellow stripe at the base of the wings, edged outside by a short black stripe on the base of the wings themselves, but not extending to the costa. Scutellum yellow, bordered with black, postscutellum and metanotum yellow, the latter broadly black in the middle, and the suture with the postscutellum narrowly black. Pleura yellow, the sutures very broadly black, slightly bordered with reddish. Legs, including coxæ and trochanters, reddish, tibiæ mostly yellow on the outside. Petiole regularly curved, much broader in its hinder half, with a slight central groove, red, narrowly black at the base, and with a broad black median band, bifid in front, and rather pointed at the extremity, on its hinder half; on each side of this is a large yellow spot, before the extremity of the petiole. Below, there is a black median stripe, followed by a yellow spot before the extremity. Abdomen yellow above, with a longitudinal blackish stripe shading into reddish brown towards the extremity. At the base of the first dorsal segment it is bordered with reddish on both sides, and the middle of the first, the basal half of the second, and the greater part of the fifth dorsal segment are crossed by two broad transverse black bands. At the end of the fourth segment the median stripe is interrupted, but it is continued beyond the dark base of the fifth segment. Ventral segments yellow, the first reddish nearly to the extremity, and the sutures between the second and fourth narrowly black. Fore-wings smoky hyaline, with an iridescence becoming purplish in the radial cell ; hind-wings clear hyaline.

Resembles *E. sichelii*, Sauss., from Albania, but the latter is a more slender insect, with no black markings (except narrow sutural lines) beyond the black transverse band on the middle of the first dorsal segment of the abdomen.

Sokotra : Adho Dimellus (3000 ft., 9. II. 99).

Rhynchium, *Spinola.*

(14) **Rhynchium versicolor.**

Long. corp. 14 mm. ; long. al. ant. 12 mm.

Female. Head and thorax with large depressed punctures, abdomen with small scattered punctures, clypeus convex, almost pear-shaped, pointed below, where it is deeply channelled in the middle, postscutellum rounded behind, sides of median segment apparently rounded, abdomen with the basal segment hardly narrower, but scarcely more than half as long as the second. Head black above, as far as the base of the antennæ ; above them stands a small transverse yellow mark. Head otherwise red, including the hinder orbits, ocular sinus, and antennæ. Mesonotum and greater part of the scutellum and mesopleura black. Pronotum red, with a yellow spot on each side in front. Mesopleura and mesopectus black, with a grey pile in the middle ; a large yellow spot, bordered below with red, below the tegulæ, and below this is another red mark. Tegulæ red, with a curved yellow spot above. Scutellum black at base, and reddish behind, with a transverse yellow stripe before the extremity. Postscutellum yellow, reddish in front, and the suture behind blackish ; sides of median segment yellow above, and red below. Abdomen red, the first and second segments banded behind with yellow ; first segment with a broad black central mark, constricted near the base, and not extending to the yellow band ; second segment with a broader continuous central black band, widest at each extremity ; third and fourth segments transversely blackish at the base. Ventral segments with the terminal depression of the first segment black, second segment with a black mark on the sides, in front of the end of the yellow band ; third and fourth segments blackish at the base and on the sides. Legs entirely red. Wings clouded hyaline, iridescent.

Sokotra : Homhil, East Sokotra (1500 ft.), 21. I. 99 ; one specimen.

Vespinæ.

Icaria, *Saussure.*

(15) Icaria grossepunctata.

Long. corp. 9 mm.; long. al. ant. 5 mm.

Female. Upperside evenly covered with large depressed punctures. Head black, antennæ red, blackish above beyond the middle, scape yellowish beneath in one specimen. Clypeus red, clothed with silvery pile, narrow at the upper angles, broader than long at the lateral angles, and obliquely sloping below to two well-marked teeth. Prothorax wholly red, except a yellow collar in front, mesonotum, mesopleura, front of metapleura, and middle of upper part of median segment black. Tegulæ red, with a yellow spot in front. Hinder part of scutellum yellow on the sides, and red in the middle; postscutellum red. Hinder part of thorax, except as already specified, legs, and abdomen red. Median segment short, slightly sloping and rounded behind; petiole twice as long as broad, blackish at the base and about one-third as broad as the following segment at the extremity. Petiole and following segment with a terminal yellow ring. Wings hyaline, with brown nervures.

Sokotra: Goahal Valley, E. Sokotra, 16-26. I. 99; two specimens.

Anthophila.

Andrenidæ.

Halictus, *Latreille.*

(16) Habictus flavovittatus.

Long. corp. 7 mm.; long al. ant. 6 mm.

Female. Black, vertex and thorax above thickly and finely punctured, the depressed space at the base of the median segment rather less finely. Face rather long, sparingly clothed with greyish hair, as also the pectus and pleura; hind femora beneath with woolly whitish yellow down; the short hairs of the tarsi inclining to reddish above, and bright fulvous beneath; hind tibiæ with tawny hairs on the inside. Abdomen black, shining, with four yellow transverse bands, one at the end of each segment. Terminal segment rufous. Wings iridescent hyaline, clothed with very fine short hairs; stigma testaceous or brown. In the male, the yellow bands of the abdomen are obsolete, and the legs are nearly black, the tarsi only being yellowish beneath.

Sokotra: Adho Dimellus (3500 ft., 3. II. 99); three specimens.

Apidæ.

Megachile, *Latreille.*

(17) Megachile punctatissima.

Long. corp. 16 mm.; long. al. ant. 12 mm.

Female. Black; head and body very thickly and finely punctured, and even the mandibles covered with large depressed punctures. Head, thorax, and first segment of abdomen clothed with white or greyish white hair; clypeus and mesonotum denuded. First four segments of the abdomen with long transverse white spots, shortening hindwards, on each side; fifth segment with a mere trace of these. Mandibles, tongue, tegulæ and legs more or less rufous; femora blackish, except at top; pile on undersurface of abdomen yellowish brown. Wings smoky hyaline, costal half of radial cell clouded.

Sokotra: Homhil, E. Sokotra (2500 ft., 22. I. 99); one specimen.

(18) **Megachile paucipunctulata.**

Long. corp. 12 mm.; long. al. ant. 9 mm.

Female. Head and thorax thickly punctured, but more coarsely than in *M. punctatissima*; hairy clothing similar; clypeus slightly convex beneath; labrum set with tawny bristles. Tongue, scape of antennæ beneath, tegulæ and legs rufous. Abdomen with the first segment concave in front, narrow, black in front, and red behind, sparingly punctured on the sides; the succeeding segments divided into three sections, most distinctly in the second and third segments; first basal, black, very thickly punctured; second black, smooth, and sparingly punctured; and third red, smooth, sparingly punctured at base. In the following segments, this is less obvious, the width of the thick basal punctuation being much reduced; and the terminal segment is almost wholly black, the punctuation being hidden by short bristles. There are five distinct white bands on each side of the first five segments; that of the first segment covers the whole width at its base. Undersurface of abdomen dark brown. Wings brownish hyaline, clearer at the base.

Sokotra: Homhil, E. Sokotra (2500 ft.), 22. I. 99; one specimen.

Crocisa, *Jurine.*

(19) **Crocisa forbesii.**

Long. corp. 10-11 mm.; long. al. ant. 9 mm.

Female. Black, with white pubescence on the head, thorax, and upper part of the femora and front tibiæ, on the rest of the legs it is reddish. The mesonotum and scutellum, are, however, almost denuded, and may have been spotted. Antennæ reddish brown, scape black. Head sparingly punctured, mesothorax less thickly than the scutellum, the hinder part of which has a tuft of white pubescence, and terminates in a plate, concave on each side, and deeply bifid in the middle, Abdomen, with each of the first four segments apparently divided in two by a deep suture; the front half is thickly punctured, and the second half smooth. On each side of the hinder smooth half of these segments is a broad ivory-white stripe. The apical segments are strongly punctured, and clothed with tawny hair. Wings iridescent hyaline, clouded at the tips and in the upper part of the radial cell; marginal and postcostal nervures dark brown, only separated by slender hyaline streak.

Sokotra: Hadibu Plain, 16. XII. 96; and Homhil, E. Sokotra (1500 ft.), 18-27. I. 99; three specimens.

(20) **Crocisa uniformis.**

Long. corp. 10 mm.; long al. ant. 9 mm.

Deep inky black, antennæ clothed with fine greyish pile, the tegulæ reddish in the middle, and the trochanters, femora, and tibiæ of the four hind legs more or less ferruginous, at least beneath. Wings purplish hyaline, with some subvitreous spaces just beyond, and around the outer cubital cell of the fore-wings; hind-wings paler towards the base. Marginal area of all the wings thickly sprinkled with brown dots. Clypeus obtusely truncated at the extremity; a strong median carina between the antennæ. Head, thorax, and scutellum thickly punctured; abdomen more finely, but still more thickly. Scutellum very broad, only slightly narrowed at the extremity, where it ends in a point on each side, between which is a concavity which is rather obtusely angulated than rounded. Between the sides of this angle projects a tuft of rather strong greyish bristles.

Sokotra: Moukaradia (800 ft., 16. XII. 98); Alilo Valley (3000 ft., 11. I.); Adho Dimellus, (3000-3500 ft., 3-5-7. II. 99); seven specimens.

Podalirius, *Latreille*.

(21) Podalirius fulvitectus.

Long. corp. 11-12 mm.; long. al. ant. 7-9 mm.

Almost the whole insect thickly clothed with fulvous pubescence, the base of the segments of the abdomen and the terminal segment very thinly. A broad triangular spot above the clypeus, the clypeus and all the lower mouth-parts pale yellow, clypeus with a broad trapezoidal black spot on each side, not extending to the extremity, which is cut off straight, and is broader than above; base of labrum with a black dot at each angle, sometimes connected by a black line. Wings almost hyaline, with brown nervures. Antennæ rufous.

Sokotra: Moukaradia, 22. XII. 98; West of Dahamis (500 ft., 22. XII. 98); Jena-agahan (1200 ft., 9. I. 99); Homhil, E. Sokotra (2500 ft., 22. I. 99); Adho Dimellus (3500-4000 ft., 16-17 II. 99); seven specimens.

(22) Podalirius antennatus.

Long. corp. 11 mm.; long. al. ant. 7 mm.

Female. Black. Head clothed with greyish white hair, inclining to tawny on the vertex, clypeus black above, and broadly yellow below, with a small triangular projection upwards; labrum yellow; clypeus and labrum narrowly edged below with rufous; mandibles black. Thorax above with light tawny, and below with grey hair; legs clothed with grey hair, mixed with tawny; hind legs almost entirely tawny; tarsi rufous. Antennæ red, black towards the base, and along the outer side. Abdomen thickly punctured; first segment clothed with grey hair at the base, and terminating in a very narrow orange, yellow, and white line, the white colour widened behind on the sides over the base of the second segment, which terminates in a narrow orange line. Third segment with a broad white band at the base, and a narrow terminal orange line. Fourth segment with white bands at the base and extremity, beneath which may be seen the terminal orange line. Fifth segment entirely tawny; sixth black in the middle, and tawny on the sides. Wings hyaline, with brown nervures.

One specimen. Homhil, E. Sokotra (2500 ft., 22. I. 99).

B. Hymenoptera from Abd-el-Kuri.

Bembicidæ.

Bembex, *Fabricius*.

(23) Bembex dissimilis.

Long. corp. 14-16 mm.; long. al. ant. 10-11 mm.

Female. Head, thorax and abdomen black above. Head clothed with whitish pubescence above, hinder orbits narrowly yellow, clypeus yellow on the lower border, and more narrowly on the sides, proboscis pale yellow on the basal half, and with the apical half reddish. Antennæ with the scape yellow beneath, and black above, except at the extremity; flagellum blackish above, more or less reddish at the joints, and reddish beneath, except for a short longitudinal line at the base. Pronotum thickly and finely punctured, black, clothed with greenish grey hair, which is longer and whiter on the hinder borders. Abdomen more coarsely punctured than the thorax, the pubescence scanty, except at the base. Legs yellow or reddish, the femora above and below, the tibiæ and the two first joints of the hind tibiæ lined above with black. Front tarsi with a row of very long pale yellow bristles, tipped with black. Wings clear hyaline.

Six specimens. Abd-el-Kuri, 22. II. 99.

Sphex, *Linn.*

(24) **Sphex granti.**

♂. Long. corp. 15 mm.; long. al. ant. 11 mm.

♀. Long. corp. 22-25 mm.; long. al. ant. 14 mm.

Head, thorax, and petiole black, clothed with long white pubescence, which is silvery white on the clypeus and hinder orbits; abdomen fulvous, the basal segments and incisions exhibiting a fugitive silvery pile; segments 3 to 5 with more or less extended transverse black spots over the sutures. Head broader than the thorax, clypeus much widened below the eyes, anterior margin transverse, hardly notched in the middle, thorax punctured, scutellum and postscutellum with a smooth transverse elevation in the middle, median segment closely and regularly longitudinally striated from side to side, and with a strong conical tooth on each side a little before the middle; abdomen smooth and shining, terminal segments of female rather long. Wings hyaline, slightly darker towards the tips; nervures piceous.

Ten specimens. Abd-el-Kuri, 22. II. 99.

Vespidæ.

Vespinæ.

Icaria, *Saussure.*

(25) **Icaria aterrima.**

Long. corp. 7 mm.; long. al. ant. 5 mm.

Female. Deep black, without a trace of any other colouring; head and thorax thickly and closely punctured, the mesonotum more finely than the rest; abdomen more sparingly, especially behind, clypeus longer than broad, strongly bifid at the extremity, median segment furrowed down the middle, and terminating in two small teeth, petiole rounded in front, raised part not longer than broad. Wings deep purple.

Two specimens. Abd-el-Kuri, 22. II. 99.

Anthophila.

Andrenidæ.

Colletes, *Latreille.*

(26) **Colletes inconspicua.**

Long. corp. 8 mm.; long. al. ant. 5 mm.

Female. Black, thickly clothed with yellowish grey hair, except on the upper surface of the four front femora, a line down the tibiæ, and three broad and one narrow band on the abdomen. Hair on the underside of the tibiæ and tarsi golden or rufous; tongue, terminal joint of antennæ, and terminal joint of the tarsi red. Eyes long, inner orbits slightly convex above, and hardly converging below, clypeus truncated at the extremity, pronotum sparingly punctured, abdomen very finely and thickly. Tegulæ testaceous, wings hyaline, with brown nervures and reddish stigma.

Two specimens. Abd-el-Kuri, 22. II. 99.

Apidæ.

Podalirius, *Latreille.*

(27) Podalirius pyramidalis.

Long. corp. 9-10 mm.; long. al. ant. 8-9 mm.

Black, vertex, thorax above, and the front legs and upper and outer side of the four hind femora and tibiæ clothed with fulvous hair. Inner and hinder orbits and sides of clypeus clothed with white hair. Clypeus arched above and cut off straight below; black above, yellow at the extremity, with a pyramidal spot rising from it to two-thirds of its height. Labrum and lower mouth-parts yellow, labrum with a black dot at the base on each side, sometimes connected by a black line. Antennæ dark reddish brown, almost black. Pleura clothed with greyish hair. Abdomen black, very finely punctured, with four snow-white bands at the extremities of the segments; terminal segment with greyish white hair on each side at the base. Wings hyaline, with brown nervures.

Four specimens. Abd-el-Kuri, 22. II. 99.

C. Hymenoptera from Arabia.

Aculeata.

Fossores.

Sphegidæ.

Ammophila, *Kirby.*

(28) Ammophila arabica.

Long. corp. 20 mm.; long. al. ant. 11 mm.

Female. Head and thorax black, clothed with fine silvery pile; lower mouth-parts, scape of antennæ, pronotum, legs and abdomen fulvous; middle femora slightly marked above with black; hind coxæ, trochanters, femora, and basal joint of tarsi striped with black; abdomen with the second joint of the petiole lined with black above; first segment of the abdomen obscurely marked with black above, longitudinally; the third and fourth black above, the latter clothed with silvery pile; rest of abdomen wanting; wings clear hyaline, slightly clouded at the tips; mesonotum transversely striate; the other thoracic segments rugose-punctate.

A single damaged specimen. Lahej, Arabia, 27. XI. 98.

Catalogue of the Lizard-tailed (Saururæ), the Toothed (Odontornithes) and the Ostrich-like (Struthiones†) Birds; and of the Tinamous (Tinami*) and the Divers (Colymbi) in the Derby Museum.

By HENRY O. FORBES, LL.D.

Note :—*The arrangement and nomenclature followed in this Catalogue in regard to the Tinami and the Colymbi are substantially those adopted in the 'Catalogue of Birds in the British Museum,' Vols. XXVII., by Count Salvadori, and XXVI., by W. R. Ogilvie-Grant.*

Saururæ.

ARCHÆOPTERYGIDÆ.

ARCHÆOPTERYX, *Meyer.* (Fossil).

lithographicus, *Meyer* (Cast).
siemensi, *Dames.*

Odontornithes.

ICHTHYORNITHIDÆ.

APATORNIS, *Marsh.* (Fossil).

celer, *Marsh.*

CIMOLOPTERYX, *Marsh.* (Fossil).

velox, *Marsh.*
pumilus, *Marsh.*

ICHTHYORNIS, *Marsh.* (Fossil

dispar, *Marsh.*
agilis, *Marsh.*
anceps, *Marsh.*
lentus, *Marsh.*
tener, *Marsh.*
validus, *Marsh.*
victor, *Marsh.*

LAORNIS, *Marsh.* (Fossil).

edwardsianus, *Marsh.*

HESPERORNITHIDÆ.

HESPERORNIS, *Marsh.* (Fossil).

regalis, *Marsh.*
crassipes, *Marsh.*
gracilis, *Marsh.*

---

* † The groups marked with an asterisk are catalogued in collaboration with Mr. H. C. Robinson, and those with a dagger partly so.

TONIORNIS, *Marsh.* (Fossil).

altus, *Marsh.*

ENALIORNITHIDÆ.

ENALIORNIS, *Seeley.* (Fossil).

barretti, *Seeley.*

BAPTORNIS, *Marsh.* (Fossil).

addenus, *Marsh.*

EUPTERORNIS, *Lemoine.* (Fossil).

remensis, *Lemoine.*

Struthiones.

ÆPYORNITHIDÆ. (Fossil).

ÆPYORNIS, *Is. Geoffr.*

maximus, *Is. Geoffr.*
medius, *Milne-Edw. & Grandid.*
modestus, *Milne-Edw. & Grandid.*
ingens, *Milne-Edw. & Grandid.*
lentus, *Milne-Edw. & Grandid.*
mulleri, *Milne-Edw. & Grandid.*
titan, *Andrews.*
cursor, *Milne-Edw. & Grandid.*
hildebrandti, *Burckh.*
grandidieri, *Rowley.*

MULLERORNIS, *Milne-Edw. & Grandid.*

betsilei, *Milne-Edw. & Grandid.*
agilis, *Milne-Edw. & Grandid.*
rudis, *Milne-Edw. & Grandid.*

DROMORNITHIDÆ. (Fossil).

DROMORNIS, *Owen.*

australis, *Owen.*

GENYORNIS, *Stirling & Zeitz.*

newtoni, *Stirling & Zeitz.*

DROMÆIDÆ.

DROMÆUS, *Vieill.*

novæ-hollandiæ (*Lath.*). Eight. 2 ad., 1 jr., 3 pull., 2 skel., sundry bones New South Wales.
ater, *Vieill.* (Extinct).
irroratus, *Bartl.*
patricius, *De Vis.* (Fossil).
gracilipes, *De Vis.* (Fossil).
queenslandiæ (*De Vis*). (Fossil).

DINORNITHIDÆ. (Fossil).

During my residence in New Zealand it was my good fortune to have the opportunity of excavating at Enfield, near Oamaru, two small-areaed superficial deposits in close proximity, from which I recovered more or less complete skeletons of several hundred individuals of Moa. None of these bones presented the slightest indications of having been interfered with by human agency, and none of them were water worn. There were, on the other hand, abundant evidences, to those extracting the remains, that the bodies of these birds—along with which occurred the bones of numerous other flightless as well as flying species—were intact when buried. Hundredweighths of gizzard-stones, fragments of Moa egg-shells, as well as the undigested vegetable contents of the stomach, which were lying *in situ* relatively to the breast bone, were disinterred from these two shallow pits. These Moas, therefore, all inhabited this part of the country, and were probably living in herds at the same, or nearly the same, period. Their limb bones were afterwards laid out by me in a long shed, and I was able to graduate the majority of them, from small to large, in a single continuous series, through which, although its extremities were, of course, distinctly different, it was impossible to draw a line which would separate one species from another by the characters of size or form, yet they belonged to quite a dozen Owenian species, and half as many genera. The same may be truly said of the crania. After an attentive study of the extensive Moa collections in New Zealand, the Glenmark, Enfield and others formerly under my charge in Christchurch, and also those in Wellington, Napier, and Dunedin, as well as, more recently, the vast Moa treasures in London, I cannot resist the conviction that far too many species have been described (often upon fractions of an inch on the proportions of the bones), and that something like the restraint in this respect might have been exercised in describing the *Dinornithidæ* and *Æpyornithidæ* that has been done in the case of the bones of *Pezophaps solitarius*, in which a "marvellous variability . . . in almost every bone of the skeleton" is, to use Professor Newton's words, also displayed. In the present Catalogue I have grouped round one typical species in each of the genera recognised by the late Professor T. Jeffery Parker, F.R.S. (Trans. Z.S. XIII. pp. 373-451), the numerous forms whose names most frequently occur in the literature of the *Dinornithidæ*. —(H.O.F.).

DINORNITHINÆ.

DINORNIS, *Owen*.

maximus, Owen. Sundry bones.

Dinornis novæ-zealandiæ, Owen ; *D. giganteus*, Owen ; *D. altus*, Hutton ; *D. ingens*, Owen ; *D. struthioides*, Owen ; *D. gracilis*, Owen ; *D. firmus*, Hutton ; *D. robustus*, Owen ; *D. potens*, Hutton ; *D. strenuus*, Hutton ; *D. excelsus*, Hutton ; *Tylopteryx torosus*, Hutton.

ANOMALOPTERYGINÆ.

PACHYORNIS, *Lydekker*.

elephantopus (*Owen*).

P. immanis, Lydekker ; *P. rothschildi*, Lydekker (immature bone) ; *Dinornis crassus*, Owen (in part) ; *Euryapteryx compacta*, Hutton ; *P. inhabilis*, Hutton ; *P. validus*, Hutton ; *Euryapteryx ponderosa*, Hutton ; *P. valgus*, Hutton.

MESOPTERYX, *Hutton*.

casuarina (*Owen*).

Dinornis didinus, Owen ; *D. dromæoides*, Owen ; *D. huttonii*, Owen ; *Palapteryx plenus*, Hutton.

ANOMALOPTERYX, *Reichenb.*

didiformis, *Owen*.

Dinornis parvus, Owen ; *Anomalopteryx fortis*, Hutton ; *Dinornis curtus*, Owen ; *D. oweni*, Haast ; *D. geranoides*, Owen ; *A. antiquus*, Hutton.*

---

* Associated with the remains of the *A. antiqua* was an unmistakable femur of *Apteryx* of the species *australis* probably.

MEGALAPTERYX, *Haast.*

hectori, *Haast.*

M. tenuipes, Lydekker; *Palæocasuarius, elegans*, H. O. Forbes; *P. haasti*, H. O. Forbes; *P. velox*, H. O. Forbes.

EMEINÆ.

EMEUS, *Reichenbach.*

crassus (*Owen*).

E. gravipes, Lydekker (= *D. gravis*, Owen); *Dinornis rheides*, Owen; *Emeus exilis*, Hutton; *Mesopteryx sp.* γ, Parker; *Emeus sp.* γ, Parker; *Euryapteryx pygmæa*, Hutton.

APTERYGIDÆ.

APTERYX, *Shaw.*

T **australis,** *Shaw.* Five. 2 skel. New Zealand (South Island).

No. 1 is the type of the species (Nat. Misc. xxiv. pp. 1057, 1058 (1813)).

lawryi, *Rothsch.* One. ♀. Stewart Island.

T **mantelli,** *Bartl.* Five. New Zealand (North Island).

No. 1 is the type of the species (P.Z.S. 1850, p. 275).

oweni, *Gould.* Seven. ♀, pull., skel. New Zealand (South Island).

oweni, *subsp.* occidentalis, *Rothsch.*

Pseudapteryx gracilis, Lydekker, founded on a tarso-metatarsus from a superficial deposit in New Zealand, is, I believe, only a slight variation from the normal form of the bone in *A. oweni.*

haasti, *Potts.* One. New Zealand.

METAPTERYX, *De Vis.* (Fossil.)

bifrons (*De Vis*).

It is very doubtful if this form has really anything to do with the *Apterygidæ.*

CASUARIIDÆ.

CASUARIUS, *Briss.*

casuarius (*Linn.*). Three. 1 jr. Skel. Detached bones. Ceram.

casuarius, *subsp.* beccarii, *Sclat.*

casuarius, *subsp.* salvadorii, *Oust.*

casuarius, *subsp.* **sclateri,** *Salvad.* One imm. British New Guinea.

casuarius, *subsp.* australis, *Wall.*

casuarius, *subsp.* violicollis, *Rothsch.* *Bull. B.O.C.* lix. p. xxvii.; *id. Ibis*, 1899, p. 307.

. . . . "Most nearly allied to *Casuarius casuarius salvadorii*, but differing conspicuously in the colour of the naked parts and in the very large size, which fully equals that of *C. casuarius australis.*

Bill much longer and straighter than in any other species of Cassowary. Casque horny brown, green at base. Face and a broad band running down the side of the bill bluish green. Base of lower mandible dark blue, with a yellow line running along one third of the length of the mandible on each side. Wattles at base of fore-neck very large, round, and short, 3 by 2¼ inches, pale blue at base, otherwise pink all over, entirely separate for their whole length, but close together. Auricular orifice larger than in any other Cassowary. Throat and fore-neck bright ultramarine-blue. Occiput and upper hind-neck pale greenish or eau-de-Nil blue. Lower hind-neck brilliant orange-scarlet. Naked lower sides of neck magenta-purple, bordered anteriorly with ultramarine-blue, posteriorly with orange-scarlet; the magenta-purple space deeply carunculated and sharply cut off from the red and blue borders, which are plain and smooth." (*Rothschild*). *Habitat.* Aru Islands, ? Trangan Island.

casuarius, *subsp.* intensus, *Rothsch.* *Bull. B.O.C.* lviii. p. xxi.; *id. Ibis*, 1899, p. 302.

"♂ *ad.* The casque differs from that of *C. casuarius* in being very high and much more erect, the wattles almost entirely blue instead of dark red; the blue of the head and neck uniform and very dark; the orange of the hind-neck much restricted and separated at the upper end from the blue by a black crescent-shaped patch; naked sides of lower neck entirely uniform blue, instead of red bordered anteriorly with blue." (*Rothschild*). *Habitat.* Unknown.

bicarunculatus, *Sclat.*
uniappendiculatus, *Blyth.*
uniappendiculatus, *subsp.* occipitalis, *Salvad.*
uniappendiculatus, *subsp.* aurantiacus, *Rothsch.* *Bull. B.O.C.* lxiii. p. l.; *id. Ibis*, 1899, p. 446.

"Face, cheeks, and occiput pale sky blue; throat dark blue. Occipital patch, fore-neck, hind-neck, and lower sides of the neck deep reddish orange. Casque horny green, and much more compressed laterally than in *C. uniappendiculatus.* Long cheek wattles absent; but the sides of the face distended, as in *C. philipi.*" (*Rothschild*). *Habitat.* German New Guinea.

philipi, *Rothsch.* *Nov. Zool.* v. p. 418 (1898).

"Plumage when adult evidently black. Casque as yet undeveloped, pale yellowish horn colour. Throat and fore-neck deep purplish blue. A single small wattle on fore-neck, round and flat, not pear shaped as in *C. uniappendiculatus*; upper third of wattle purplish red, rest dark blue. Hairy feathers of neck very thick and reaching high up the neck. Head, occiput, and upper half of hind-neck very pale greenish blue; lower half of hind-neck pale orange-yellow. Naked skin on lower sides of neck deep crimson, fading into cherry-red on the edges. Legs very stout and short; body set very low on the legs and very bulky, giving the bird the exact shape *Dinornis elephantopus* must have had. (*Rothschild*). *Habitat.* Probably Eastern German New Guinea.

papuanus, *Schleg.*
papuanus, *subsp.* edwardsi, *Oust.*
picticollis, *Sclat.*
picticollis, *subsp.* necki, *Rothsch.* *Bull. B.O.C.* lxiii. p. xlix.; *id. Ibis*, 1899, p. 446.

"This bird bears the same relationship to *C. picticollis* that *C. papuanus edwardsi* does to *C. papuanus.* The throat and hind-neck are deep indigo-blue. Occiput pale greenish blue. A small round black wattle on the fore-neck. Lower sides of neck dark crimson. Casque and plumage similar to *C. picticollis.*" (*Rothschild*). *Habitat.* German New Guinea.

loriæ, *Rothsch.* *Nov. Zool.* v. p. 513 (1898).

. . . . "Differing from *C. picticollis* in having all the front and sides of the neck red." (*Rothschild*). *Habitat.* S.E. British New Guinea (Upper Brown River).

bennetti, *Gould.*

HYPSELORNIS, *Lydekker.* (Fossil).

sivalensis, *Lydekker.*
bennetti, *Gould.*

RHEIDÆ.

RHEA, *Lath.*

americana, (*Linn.*). Five. 2 pull. skel. Sundry bones.
macrorhyncha, *Sclat.*
darwini, *Gould.* One. Bolivia.
fossilis, *Amegh.* (Fossil).

BARORNIS, *Marsh.* (Fossil).

regens, *Marsh.*

LAOPTERYX, *Marsh.* (Fossil).

prisca, *Marsh.*

STRUTHIONIDÆ.

STRUTHIO, *Linn.*

camelus, *Linn.* Seven. 2 ♂, ♀, jr., 2 pull., skel. North Arabia.

The only specimen with any locality is the imperfect skin in the Tristram Collection from Northern Arabia.

molybdophanes, *Rchnw.*

Struthio massaicus, Neumann, *J.F.O.*, 1898, p. 243, is only a synonym of this species.

australis, *Gurney.*

asiaticus, *Milne-Edw.* (Fossil).

chersonensis, *Brandt.* (Fossil).

karatheodoris, *Forsyth Major.* (Fossil).

The STRUTHIONES are, therefore, represented in the Museum by 10 out the 19 characterised genera; and by 49 specimens belonging to 16 out of the 65 described (including 32 fossil) species. The number of species represented by their Types is 2. (August, 1900).

Tinami.

TINAMIDÆ.

TINAMINÆ.

TINAMUS, *Herm.*

tao, *Temm.* One. New Granada (Llanos de San Martin).

T kleei (*Tschudi*). One. Peru.

A specimen collected by Tschudi and marked as his species, and therefore probably one of the Co-types does not agree with *T. tao* with which it has been associated by Count Salvadori (Cat. Birds Brit. Mus. xxvii. p. 498); the colouration is very similar to *T. tao* but the dimensions are very much less, Wing 8·4, Tarsus 2·2, Culmen 1·1 inch.

robustus, *Sclat.*. Three. Honduras (Belize; Omoa).

solitarius (*Vieill.*).

fuscipennis (*Vieill.*).

salvini, *Underw.* *Bull. B.O.C.* lv., p. 59 (1898); *id. Ibis*, 1898, p. 612.

"Resembling *T. fuscipennis*, but much smaller with the secondaries externally notched with pale rufous bars. Fore-neck and chest olive grey barred with fulvous; abdomen whitish fulvous distinctly barred with black. Total length 10·5; Culmen 1·15; Wing 7·2; Tail 2·0; Tarsus 2·0 inch." (*Underwood*). *Habitat.* Costa Rica (*Carillo*).

major (*Gm.*). One. Brazil.

subcristatus (*Cab.*). Two.

latifrons, *Salvad.*

ruficeps, *Sclat. & Salv.* One. Amazons.

castaneiceps, *Salvad.*

guttatus, *Natt.* Three.

NOTHOCERCUS, *Bp.*

julius (*Bp.*). One.

nigricapillus (*G.R.Gr.*).

bonapartii (*G.R.Gr.*). One. Bogota ?

Wing 8·9, not 6·7 inches as quoted by Salvadori.

frantzii (*Lawr.*)

intercedens, *Salvad.*

CRYPTURUS, *Ill.*

cinereus (*Gm.*). Two. ♀.

berlepschi, *Rothsch.* *Bull. B.O.C.* xlvii. p. 5 (1897); *id. Ibis*, 1898 p. 145.

> "Entirely brownish black, the abdomen and thighs vermiculated and washed with dull rufous brown; the under tail-coverts rusty red. Total length 300 mm., wing 180, tarsus 60, culmen 33." (*Rothschild*). *Habitat.* N. Ecuador (*Cachabé*, 500 ft.)

obsoletus (*Temm.*). One.

cerviniventris, *Sclat. & Salv.*

griseiventris, *Salvad.*

castaneus (*Sclat.*).

pileatus (*Bodd.*). Four. Demerara.

tataupa (*Vieill.*). Seven. ♂, ♀, jr. Bolivia. Brazil.

parvirostris, *Wagl.* Three. Bolivia.

kerberti, *Buttik.* *Notes Leyd. Mus.* xviii. p. 1 (1896).

> "Very closely allied to *C. tataupa* and *C. parvirostris*, especially to the latter, with which it agrees in the smaller size. From both species our specimen differs, however, in the darker, greyish black colour of head and hind neck, and in the slaty grey instead of whitish throat and centre of breast and abdomen. Entire head, neck and lower throat greyish black, without any olive-brown tinge on the occiput; upper parts and tail chestnut-brown, the rump somewhat glossed with purplish, and very finely vermiculated with black, especially on the wing-coverts, and more strongly so on the secondaries; primaries and their coverts uniform dark earthy brown; under surface of the wing, chin, upper throat, centre of breast and abdomen uniform slaty grey, not ashy white or isabel as in *C. tataupa* and *parvirostris*; chest, breast and sides of breast ashy grey with a fulvous tinge, and finely vermiculated with black; lower flanks black, each feather margined with ashy white and showing a V-shaped mark of the same colour on the centre of the feather; vent like the abdomen, but each feather broadly centred with pale chestnut; under tail-coverts fulvous, with arrow-shaped, black markings; under wing-coverts like the breast. Iris chocolate-brown, bill blood red, feet pinkish red. Wing (secondaries) 11·5; tail 2·5; tarsus 3·0; culmen 2·2 cm. (*Buttikofer*). *Habitat.* Argentina.

undulatus (*Temm.*).

scolopax (*Bp.*). Two. Bolivia.

adspersus (*Temm.*).

simplex, *Salvad.*

balstoni, *Bartl.* One. Rio Negro.

Purchased from Leadbeater in Aug. 1850.

T atricapillus, *Tschudi.* One. Peru.

Collected by Tschudi and probably a Co-type of the species.

garleppi, *Berlepsch.*

rubripes, *Tacz.*

strigulosus (*Temm.*).

erythropus (*Temm.*).

variegatus (*Gm.*). Six. 1 jr. Guiana. Cayenne.

salvini, *Salvad.*

brevirostris (*Natt.*).

bartletti, *Scl. & Salv.*

noctivagus (*Wied.*). Four. 2 ♂, ♀.

These specimens, which are apparently aviary birds, have the superciliaries white, and agree generally with the specimens in the Turin Museum mentioned by Salvadori (Cat. Birds, Brit. Mus. xxvii. p. 540 (1895).

dissimilis, *Salvad.*

cinnamomeus (*Less.*). Seven. Central America (La Union, March).

boucardi (*Sallé*).

columbianus, *Salvad.*

mexicanus, *Salvad.*

crypturus inornatus, *Nelson, Auk.* xvii., pp. 253-254 (1900).

"Nearest *C. mexicanus*, from which the males may be distinguished by their deep reddish brown, slightly barred backs and more rufous underparts; the females are much deeper, more reddish brown both above and below.

"*Adult Male.*—Crown and forehead black slightly suffused with greyish; nape dark reddish brown becoming light vandyke brown with a faint purplish bloom on back and sides of neck and forepart of shoulders; shoulders and upper back plain, dark burnt umber; rump and upper tail-coverts lighter, more rusty brown and sparsely and indistinctly barred with black; primaries and secondaries dark slaty edged with brownish; wing-coverts, scapulars and tertials slightly paler brown than back and finely and indistinctly maculated but not barred with blackish; sides of head to upper part of neck cinnamon brown; chin and throat white; under side of neck along median line dingy grayish brown shading into surrounding colour; breast deep, dark cinnamon brown becoming darker and browner on sides and clearer, paler cinnamon along median line; abdomen, flanks, and under tail-coverts mixed buffy, whitish and dull cinnamon obscurely and coarsely barred with blackish. *Dimensions*—Wing, 166; tail, 56; culmen, 29; tarsus, 52 mm.

"*Adult Female.*—Crown rusty, greyish brown (becoming bright rusty brown on nape) and obscurely barred with black; back and sides of neck bright rusty cinnamon; middle of forepart of shoulders tawny, sepia brown becoming dark cinnamon brown on sides; interscapular region dark umber brown shading into cinnamon brown on upper tail coverts with entire back coarsely and obscurely barred with black; upper surface of wings slaty blackish coarsely barred with tawny cinnamon; sides of head tawny cinnamon with vinaceous shade on adjacent part of neck; chin and throat white; under side of neck dark ashy washed with rusty brown; breast bright rusty cinnamon, darkest on sides and palest next abdomen; abdomen and flanks dull buffy, obscurely and coarsely barred with blackish; under tail-coverts deep buff coarsely maculated with black. *Dimensions*—Wing, 165; tail, 54; culmen, 29; tarsus, 52 mm.

"*General Notes.*—The darker colour and absence of black bars on wings and foreback of the males separate this bird at once from its nearest ally *C. mexicanus*. The females are less distinct; the darker back and brighter coloured nape and neck of *C. inornatus* suffice, however, to distinguish it at a glance."—(*Nelson*). *Habitat.*—Dense humid tropical forests of northern Vera Cruz and adjacent part of Puebla.

occidentalis, *Salvad.*

transfasciatus, *Sclat. & Salv.*

RHYNCHOTUS, *Spix.*

rufescens (*Temm.*). Nine. ♂, ♀. South Brazil. Bolivia.

Salvadori queries the locality Bolivia, yet there is no doubt that three of the specimens above enumerated were collected there by Bridges.

maculicollis, *G.R.Gr.*

NOTHOPROCTA, *Sclat. & Salv.*

taczanowskii, *Sclat. & Salv.*

cinerascens (*Burm.*). One. [Bolivia.]

This specimen, collected by Bridges, and said to be from Bolivia, is more probably from Mendoza, where he also collected.

perdicaria (*Kittl.*). Nine. Chili.

coquimbica, *Salvad.* One.

This specimen, purchased from Gould in 1830, but with no locality attached, is referred to the above species, as it has the upper parts more greyish than any of the specimens of *N. perdicaria* in our collection.

pentlandi (*G.R.Gr.*). Two. Bolivia.

curvirostris, *Sclat. & Salv.*

ornata (*G.R.Gr.*). Two. Bolivia.

branickii, *Tacz.*

NOTHURA, *Wagl.*

maculosa (*Temm.*). Three.

nigroguttata, *Salvad.*

boliviana, *Salvad.* One. Bolivia.

marmorata, *G.R.Gr.* One. Bolivia.

boraquira (*Spix*).

darwini, *G.R.Gr.*

media (*Spix*). Two. Bolivia.

paludosa, *Mercerat* (Fossil).

TAONISCUS, *Gloger.*

nanus (*Temm.*).

TINAMOTIDINÆ.

CALOPEZUS, *Ridgw.*

elegans (*Geoffr.*). Seven. [Bolivia]. [Chili]. Patagonia (Rio Negra).

The specimens labelled Bolivia and Chili, which were collected by Bridges, are probably from Mendoza.

TINAMOTIS, *Vig.*

pentlandi, *Vig.* Two. Bolivia.

These are the specimens referred to by Bridges, P.Z.S. 1846, p. 9, as *Eudromia sp.*

ingoulfi, *Oust.*

The TINAMI are, therefore, represented in the Museum by 8 out of the 9 characterised genera; and by 92 specimens belonging to 32 out of the 72 described (including one fossil) species. The number of species represented by their Types (or Co-types) is 2. (August, 1900.)

Colymbi.

COLYMBIDÆ.

COLYMBUS, *Linn.*

septentrionalis, *Linn.* Seventeen. 2 ♂ (1 jr.), 3 ♀ (1 jr.), 2 pull. Russia (White Sea, Sjusma). Scandinavia. Scotland (Lewis, Loch Seaforth, March). England (Durham, Greatham, January, September, December; Norfolk).

arcticus, *Linn.* Six. 2 pull. Norway (Bodoe, June). Sweden (Wermland, May).

arcticus, *subsp.* pacificus, *Lawr.*

glacialis, *Linn.* Fourteen. 1 ♂, 1 ♀. Orkneys. Skye. England (Durham, Greatham, January ; Cornwall, May). Newfoundland. Canada (Niagara, May).

adamsi, *G.R.Gr.*

COLYMBOIDES, *Milne-Ed.* (Fossil.)

minutus, *Milne-Ed.*

anglicus, *Lydekker.*

The COLYMBI are, therefore, represented in the Museum by 1 out of the 2 characterised genera (1 being fossil) ; and by 33 specimens belonging to 3 out of the 7 described (2 being fossil) species. (August, 1900.)

PRESENTED
12 OCT. 1900
BRITISH MUSEUM NATURAL HISTORY

MAY, 1901.

VOL. III. No. 2.

Bulletin
of the
Liverpool Museums

Under the City Council.

CONTENTS.

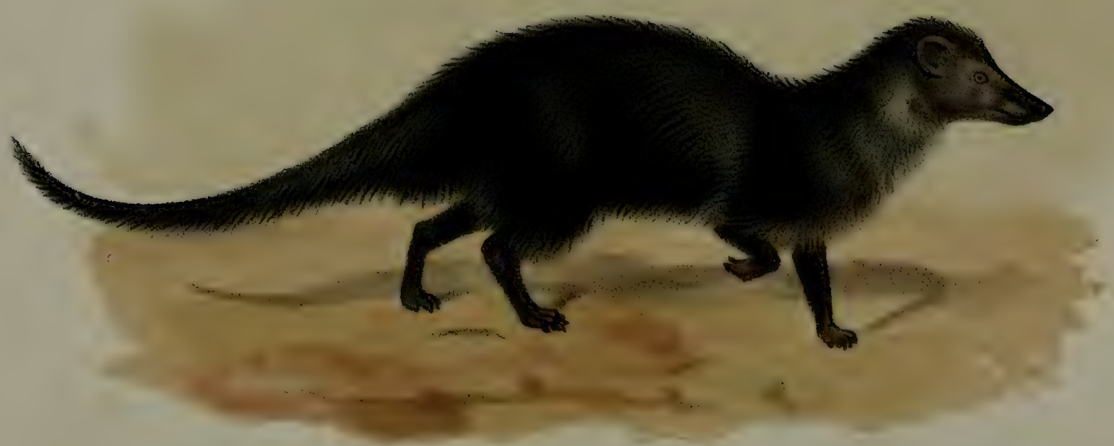
	PAGE
Description of a New Mongoose from West Africa. By W. E. DE WINTON, F.Z.S. *(With a Plate)*	35
An Account of a Perforated and Distorted Cranium in the Mayer Museum. By Prof. A. M. PATERSON, M.D., and F. T. LOVEGROVE, M.R.C.S. *(Illustrated)*	37
On the Age of the Surface Flint Implements of Egypt and Somaliland. By HENRY O. FORBES, LL.D. *(Illustrated)*	48
Notes on Some Rare Birds in the Lord Derby Museum: By HENRY O. FORBES, LL.D.	
I. On a Species of Bittern *(Zebrilus pumilus)* from South America *(With a Plate)*	61
II. On Lord Stanley's Water Hen *(Porphyrio stanleyi)*	62

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

LIVERPOOL:
THE FREE PUBLIC MUSEUMS;
HENRY YOUNG & SONS, 12, SOUTH CASTLE STREET,
AND 23, PARKER STREET.

ISSUED 10th MAY.

NOTE.—The Director regrets the delay in the issue of the present *Bulletin,* which has been occasioned by the extensive alterations to the Museum Buildings now in progress. The impossibility of access to the Bird Collections from the same cause has interrupted the publication of the *Catalogue of Birds.*



W.G. de Winton del.

Herpestes naso, de Winton.

Mintern Bros. Chromo.

Bulletin

of the

Liverpool Museums

UNDER THE CITY COUNCIL.

Edited by **H. O. Forbes, LL.D.,** *Director of Museums.*

VOL. III. MAY, 1901. No. 2.

Description of a New Mongoose from West Africa,

BY W. E. DE WINTON, F.Z.S.

(PLATE I.—*Viverridæ.*)

The Mongoose here described was presented to the Liverpool Museums by Mr. A. Ridyard, who obtained it in the Cameroon River, West Africa, and lived in the Gardens of the Zoological Society of London for about one year. By the kindness of Dr. Forbes, the specimen was made over to the British Museum by exchange.

In captivity the animal was at all times perfectly silent and somewhat shy, but soon became friendly with those whom it recognised, and its friendship was easily gained by the gift of a sparrow or other small bird, which was very quickly eaten.

The writer has had in his possession for some time the skull of a very large Mongoose, obtained from the natives by Mr. G. L. Bates on the Benito River, in the north of the French Congo. There can be no doubt of the identity of this skull with the present species, and as it is that of an adult male, the measurements are given below. The sagittal crest in this specimen is greatly developed, rising about five millimetres in height above the roof of the skull, from just in front of the temporal constriction backwards. In this specimen, too, the ossification of the orbital ring is complete and very strong; in the type the frontal and malar processes are not in contact.

The general form of the animal when alive gave very little indication of its true affinity. Its digitigrade carriage more resembled that of the subgenus *Ichneumia*, while its long face distinguished it from all known Mongooses; this latter character is, however, almost entirely due to the length of the fleshy snout which extends far in front of the mouth and bones of the face.

Herpestes naso, *sp. n.*

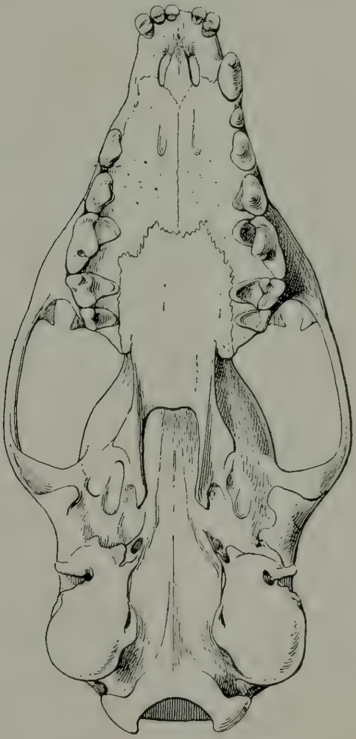
In general form and carriage this species strongly resembles the Whitetailed Ichneumon (*Ichneumia*), but the head is much longer and the snout extends far in front of the lower lip.

General colour very dark grizzled, or jet black dusted with white or yellow; the head and neck are considerably paler than the body, owing to the finer and whiter annulations of the hairs; the body fur is all annulated in various degrees, the hairs having one or two golden rings of various depth on their distal half; the tail is much the colour of the head and neck, the rings on the hairs being whitish; the legs and feet are almost jet black. The hairs of the whole body and tail agree in having a broad white band about the middle of their length, which is very conspicuous above the under fur when the hair is raised or parted; the under fur is dark brownish grey with pale tips.

Type ♀. British Museum, No. 0.7.5.1.

Measurements taken from the animal in the flesh:—Head and body 580 millimetres, tail 370, fore-arm and hand 145, hind-foot 105, ear 37 by 36 broad, nose to ear 112, nose to front of eye 57, eye opening 8, back of eye to ear (notch or meatus) 47; the snout extends in front of lower lip 23 millimetres.

A perpendicular line drawn from the front corner of the eye cuts the back of the gape. Iris orange brown. The rhynarium in front measures 17 millimetres in height, the breadth of the upper lappets of the nostrils is also 17,



SKULL OF *Herpestes naso*.
Slightly less than natural size.

the smallest distance between the nostrils in front is 10, and on the dorsal surface, where they appear like two narrow oval openings, the nearest points are 14 millimetres apart; the greatest width of the rhynarium outside the nostrils is 21 millimetres.

Both fore- and hind-feet are webbed, the last joint only of the digits being free. The plantar surface of the fore-feet extends to the carpal joint, or 60 millimetres from the end of the third finger. The plantar surface of the hind-feet extends to the base of the first toe only, or 56 millimetres from the end of the longest toe. The proportions of the toes are as follows:—the fore-feet, 3rd and 4th equal and longest, 2nd shorter by half of pad, 5th shorter than 2nd by half of pad, 1st reaches to basal joint of 2nd, or 27 millimetres shorter. The hind-feet—1st small, 31 millimetres short of 2nd, which is sub-equal with 5th, reaching to the posterior border of the pads of 3rd and 4th, which are very nearly equal, the 3rd being slightly the longest.

The skull and dentition closely resemble *H. caffer*, but may be distinguished by the longer facial portion, the almost horizontal set of the auditory bullæ, the rather longer and narrower postpalatal shelf, and the larger size of the second upper molar, which is about half the size of the first.

The principal measurements of the skull are given in tabular form, along with that of the large male from Benito R. and a fully adult *H. caffer* (British Museum, No. 99.8.4.38) from Ravine Station in British East Africa. This latter specimen is unsexed, but, from the size of the teeth, it is presumably a female. The skull of a rather younger male, however, gives practically the same measurements.

	Type ♀.	Benito R. ♂.	H. caffer ♀ (?).
Greatest length, ...	110	119	102
" width, ...	53	67	51
Premaxilla to orbit, . . .	38·8	42·5	27·8
Length of palate, ...	62	67	58·5
Width outside $^{\underline{\text{pms. 3}}}$ . . .	33	37	33

An Account of a Perforated and Distorted Cranium in the Mayer Museum.*

By A. M. Paterson, M.D., *Professor of Anatomy;* and F. T. Lovegrove, M.R.C.S., Eng., *Robert Gee Fellow in Anatomy, University College, Liverpool.*

The following is an account of a remarkable microcephalic and distorted cranium from Eastry, in Kent, in the Liverpool Museums, kindly sent by Dr. H. O. Forbes, the Director, to the Anatomical Department of University College for examination. With it are compared two others in the Pathological Museum, University College, Liverpool, all three being cases of double symmetrical perforations of the parietal bones.

(1) The Eastry Cranium.

The specimen (Figs. 1-4) consists of cranium only. It is scaphocephalic and microcephalic: the sutures are obliterated, and in each parietal bone behind the vertex is a symmetrical perforation of large size.

---

* Reprinted, with slight verbal alterations, from the *Journal of Anatomy and Physiology*, vol. xxxiv., pp. 228-237, 1900.

Viewed *from above* (Fig. 1) the sutures are seen to be obliterated (except the lambdoidal suture, which is faintly indicated on the left side). The parietal region is symmetrically vaulted. In each parietal bone at its posterior superior angle is a large perforation, symmetrically placed, and separated in the middle line by a bridge of bone without sutures, 20 mm. broad at the narrowest part. The *left* perforation reaches the lambdoidal suture, which is faintly marked in the surface of the skull. It is oval in outline, and measures 4·0 cm. antero-posteriorly: 3·2 cm. from side to side. The *right* perforation is smaller and more circular, and does not extend so far forwards or backwards. It measures 3·0 cm. from before backwards; 3·2 cm. from side to side. The margins of both holes are bevelled externally, and (to a less extent) internally, and the outer surface of each is marked by numerous diverging striations.

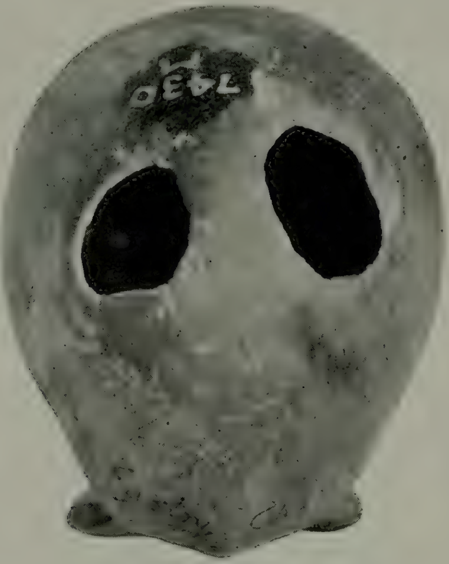


FIG. 1.—SUPERIOR VIEW OF THE EASTRY CRANIUM.

A front view of the cranium (Fig. 2) shows the exaggerated vault of the frontal bone, temporal ridges well marked, and curved in such a way as to narrow the forehead to a remarkable degree (62 mm.); prominent external angular processes, and well marked but small supra-orbital arches. The frontal bone is flattened in its lowest part, and becomes vaulted above. In its centre is a prominent ridge, running upwards as far as the bregma. The supraciliary ridges are faintly indicated. About 25 mm. from the glabella on the left side of the middle line is a small round hole communicating with the left frontal sinus. It appears to have been formed during life, as attached on each side of it is a small irregular spicule of bone.

A side view (Fig. 3) shows the remarkable expansion of the parietal and occipital regions as compared with the frontal and temporal regions. The slope of the frontal bone is well marked; the temporal fossa is small and shallow, and the root of the zygoma is separated from the external angular process of the frontal bone by a distance of only 40 mm. The temporal ridge is well marked in front and behind, but is only faintly indicated in its middle third. On the right side the greater part of the great wing of the sphenoid bone is wanting. On both sides its articulations with the frontal and the squamous portion of the temporal bone are clearly indicated. It does not appear to articulate with the parietal bone. The mastoid processes are small and infantile in character; and below do not reach to the level of the occipital condyles. The digastric grooves are well marked.

From behind (Fig. 4) the vaulted character of the cranium is well seen. The external occipital protuberance is prominent. The region above it is raised in an exaggerated dome-like form; the part below it is of large extent, flattened, and directed downwards and backwards. The sutures are practically obliterated, and the whole of the surface shows an erosion of the outer table of the skull, particularly over the upper portion on the left side.

The inferior surface (Figs. 7 and 8) shows the remarkably short length of the basi-cranial axis of the skull, between the foramen magnum and the glabella (97 mm.) as compared with the total length of the cranium (178 mm.). Only the cranial bones are present. The area for attachment of the facial bones is extremely small, corresponding to the narrow forehead, shallow and small temporal fossæ, and infantile mastoid processes. The occipital condyles are flat, small, and asymmetrical, and their long axes are more transverse than usual. The foramen magnum is normal in size, but irregular and asymmetrical in shape. Around its margin posteriorly between each condyle is a slightly elevated ridge of bone. In front of each condyle is a similar more prominent bar of bone ending anteriorly in a free knob-like extremity, not united to the neighbouring piece. The series, together with the condyles, have a likeness to the under surface of an atlas, the anterior arches of which have not joined together.

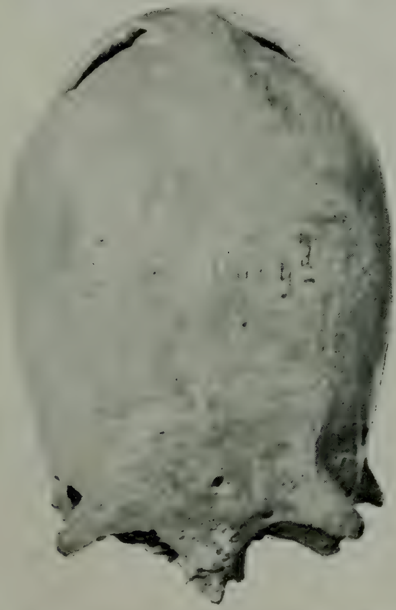


FIG. 2.—ANTERIOR VIEW OF THE EASTRY CRANIUM.

The interior of the cranium can be examined by the light afforded by the parietal perforations. A very remarkable condition is found in the basal fossæ. The posterior fossa is large and capacious. It occupies more than two-thirds of the base of the cranium, and is covered by the greater part of the vault. The middle and anterior fossæ are very small. Both are perforated and excavated by holes and depressions of various size, and are separated by the lesser wings of the sphenoid bone, which are distorted by the formation of osseous plates erected on their upper surfaces, so as to still further deepen and narrow the anterior fossa. The floor of this fossa is sloped towards the median line and is convex; it is remarkably deep over the cribriform plate, which is concave in the antero-posterior direction. The pituitary fossa is well marked. The anterior and middle fossæ are roofed over by the narrow, sloping frontal bone, which still more limits the capacity of this part of the cranium. All the fossæ are enlarged at the expense of the bones in the base of the skull. Both basi-sphenoid and basi-occipital bones are much thinner than usual. In the posterior fossa an abnormal arrangement of the *venous sinuses* was seen to have existed. On the left side the lateral sulcus is absent, except close to the jugular foramen. Instead, there is a well marked groove in the position of the occipital sinus, extending from the internal occipital protuberance to the foramen magnum, and along its margin to the jugular foramen of the left side. Here it is joined by a deep groove half an inch in length, corresponding to the terminal portion of the lateral sulcus. On the right side the lateral sulcus has its usual form and course.

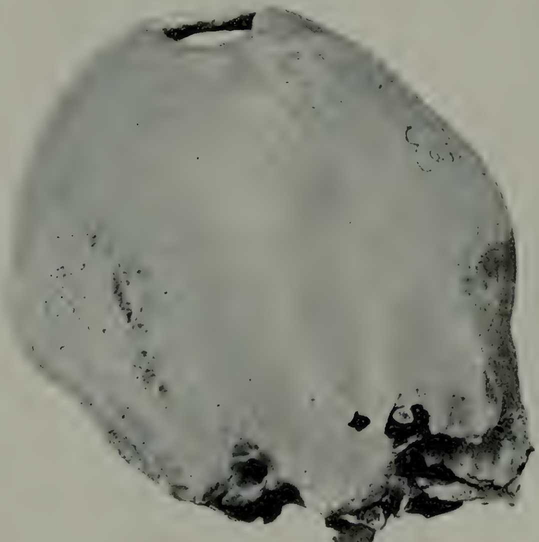


FIG. 3.—LATERAL VIEW OF THE EASTRY CRANIUM.

Measurements.

The measurements were difficult to obtain, as the obliteration of sutures left the determination of the standard points doubtful.

Cranial Capacity, 1225 c.c. (measured with mustard seed).

Measurements—	Millim.
Maximum length, .	178
Ophryo-iniac length, .	149
Ophryo occipital length,	166
Maximum breadth, .	124
Bisterial breadth, .	105
Minimum frontal breadth,	62
Bisstephanic breadth, .	103
Biauricular breadth, .	79
Bizygomatic breadth, .	103
Basi-nasal length, .	80
Basi-bregmatic length,	128
Basion-obelion length, .	153
Basion-lambda length, .	150
Basion-iniac length, .	66
Basion to opisthion .	33

Measurements—continued.	Millim.
Breadth of foramen magnum, . .	26
Minimum inter orbital breadth, . . .	16
Arcs—Frontal, . .	112
Parietal, . .	80
Occipital, superior, .	128
Occipital, inferior, .	61
Horizontal circumference, . . .	456
Indices—	
Cephalic, . . =	69·66
Vertical, . . =	71·91
Breadth height, . =	105·225
Frontal, . . =	60·19

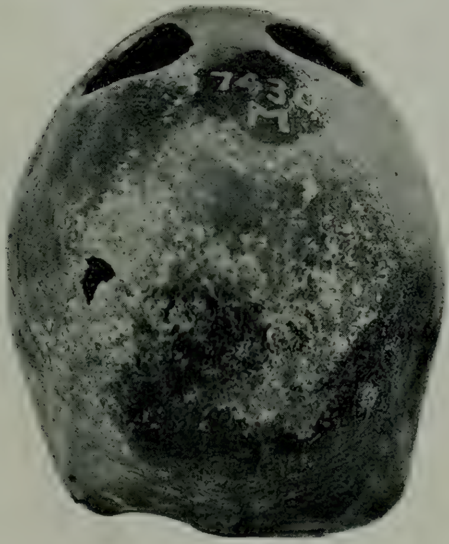


Fig. 4.—Posterior View of the Eastry Cranium.

(2) and (3) Calvaria in the Pathological Museum of University College, Liverpool.

Among the osteological series in the Pathological Museum we have found two calvaria, with symmetrical perforations of the parietal bones. There is no history attached to the specimens.

No. 306 (Fig. 5) is a calvarium sawn off above the lambda. The coronal suture is well marked, and there is a metopic suture. The sagittal suture is visible, except for about 25 mm. near its posterior end. In each parietal bone there is a perforation separated across the middle line by a bridge of bone 19·75 mm. in its narrowest part. The sagittal suture is obliterated in relation to this bridge of bone, which is grooved on its under surface for the superior longitudinal sinus. Across the middle line, and connecting the two perforations, is a transverse suture passing through the thickness of the bone. The perforations of the parietal bones are neither large nor equal in size. The right hole is somewhat triangular in shape, the apex pointing outwards. It measures 17 mm. transversely, and 8·5 mm. from before backwards. The left hole is smaller and rhomboidal in shape; it measures 11 mm. from side to side, and 7 mm. antero-posteriorly. The margins of both holes are bevelled, and are marked externally by faint striations. Internally, grooves for meningeal vessels can be traced to the perforations.

No. 307 (Fig. 6) is a similar calvarium sawn through above the level of the lambdoidal suture. The coronal suture is well marked, and the sagittal suture is obliterated for 25 mm. in the neighbourhood of the parietal perforations.

In this specimen the parietal holes communicate across the middle line, presenting an hour-glass form. They are symmetrical and almost circular. The narrow interval between them measures 3·75 mm. from before backwards. The lateral portions measure from before backwards 16 mm. on the right side, 17·75 mm. on the left side, and the total transverse diameter of the two holes together is (R. 21, L. 16) 37 mm. The margins of the perforations are bevelled both externally and internally. Internally grooves corresponding to meningeal vessels run to the margin of the holes. The longitudinal sulcus deviates from the middle line so as to end in front of the left perforation. It begins again in the middle line behind the perforations.

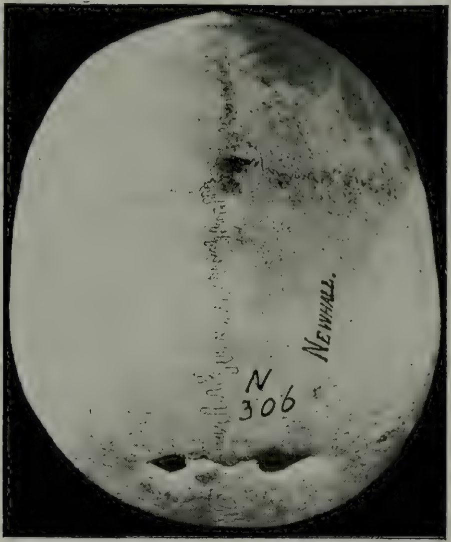


FIG. 5.—CALVARIUM IN THE PATHOLOGICAL MUSEUM, UNIVERSITY COLLEGE, LIVERPOOL.

Two points of interest are noticeable in the above specimens: (1) the distortion and microcephaly of the cranium (I), and (2) the presence of parietal perforations.

(1) The microcephalic character of the skull is not excessive, its capacity being 1225 c.c. The distortion consists in a greatly expanded vault superiorly

and posteriorly, associated with arrest of development of the base of the cranium, and obliteration of the cranial sutures. The effect of closure of the sutures is apparent not only in the expansion of the vault of the cranium, but also in the forcing downwards of the base of the skull in front of the foramen magnum, and the consequent deepening of the basal fossæ. Associated characters are the imperfect condition of the foramen magnum; the infantile condition of the mastoid processes, and the character of the occipital condyles.

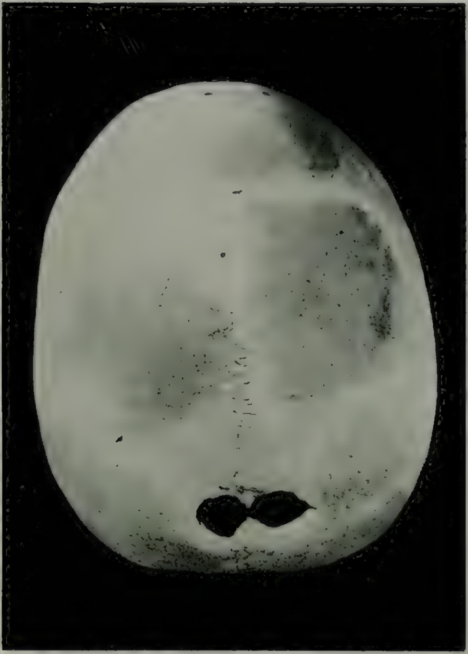


FIG. 6.—CALVARIUM IN THE PATHOLOGICAL MUSEUM, UNIVERSITY COLLEGE, LIVERPOOL.

In Fig. 7, the contour of the cranium (c) is compared with the contours of the normal Irish skull (a) and the skull of the microcephalic idiot (b), as described by Cunningham and Telford Smith. The differences are seen to be due to the small size of the basi-cranial axis, and the projection of the vault of the cranium. In Fig. 8 a similar comparison is made of the basal outline of the cranium (c) with the average of two normal European crania (a).

We have been struck with the general resemblance which this cranium in its upper part has to the Neanderthal skull, and the fragment described by Dubois from Java. If this cranium had been without its under surface, it would have been in general contour very similar to these two specimens.

(2) *Parietal Perforation.*—Humphry (6) is the first English author to refer to symmetrical perforations. He mentions a cranium in the Cambridge Anatomical Museum, possessing parietal perforations which admitted "the end of the finger."

The first case fully described in 1865 was by Sir William Turner (2), from a specimen obtained by Dr. T. J. Maclagan and illustrated by Dr.

Richard Caton. It was very similar to the specimens described above; there was a suture connecting the left perforation with the lambda, and the holes were filled up by cribriform membranes. They were situated at the postero-superior angles of the parietal bones, and there was an additional perforation in the median line in the supra-occipital bone. The sagittal suture was partially obliterated.

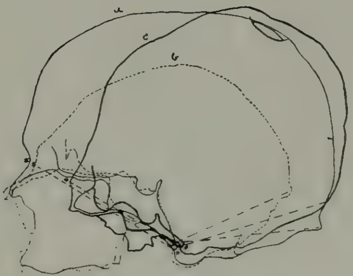


FIG. 7.—LIVERPOOL CRANIUM (*c*) compared with normal Irish cranium (*a*) and that of microcephalic idiot (*b*), as figured by Cunningham and Telford Smith (* . . . . * = Basi-cranial Axis).

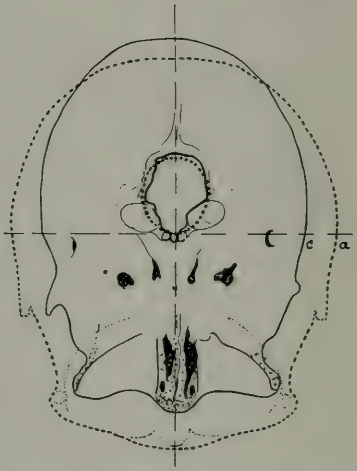


FIG. 8.—BASE OF LIVERPOOL CRANIUM (*c*) compared with the average of two normal European crania (*a*).

In all, ten cases of parietal perforations have been previously recorded. Besides Humphry's and Turner's examples, Wrany (3) has recorded four cases; Broca (4) is responsible for three, and D. M. Greig (7), formerly Demonstrator of Anatomy in University College, Dundee, has described one case.

Of Wrany's four cases (3) one appears to be an example of mere enlargement of the normal parietal foramen, the left being the larger of the two perforations and big enough to admit a raven's quill. Of Broca's cases, one, a negro cranium (5), is also an example of an enlarged parietal foramen. Greig's case is particularly interesting from the fact that the subject is a soldier who was alive at the beginning of the year (8). The condition in this case is known to be congenital. The pulsation of the brain can be felt beneath the perforations, and the scalp is freely movable over them.

With the three examples described above, we are acquainted altogether with eleven certain, and thirteen possible examples of double parietal perforations. They present, taken together, three points more or less in common: (1) the position of the perforations in the position of the normal parietal foramen at the postero-superior angles of the parietal bones; (2) the microcephalic character of the cranium, referred to in four cases—Turner's, one of Broca's (Baron Larrey's case), Greig's case, and the cranium from the Liverpool Museum; and (3) the partial or complete obliteration of sutures referred to in five cases—three Liverpool cases, Turner's, and one of Wrany's cases.

The differences among the several cases are mainly differences in size, the holes varying from mere enlargement of the parietal foramen to perforations measuring, as in one of our cases, 4·0 by 3·2 and 3·2 by 3 cm.

Possibility of Trephining.—We should not enter into the question of the possibility of trephining having occurred in one of our specimens, had not the cranium been figured in Dr. Robert Munro's *Prehistoric Problems*, 1897 (13), and cited as the solitary example of double trepanning known in an English skull. The "trepanned apertures show clean cut and slightly round edges . . . , the production of which seems to me to have entailed the use of surgical instruments of a higher order than were to be had either in the Bronze or Stone Age." As the deformity of the skull "was probably due to pathological causes, it is interesting to note that the operation (of trepanning) had been resorted to as a means of treatment."

Broca, who was among the first anthropologists who investigated the occurrence of artificial perforations of the cranium, clearly recognises the difference between such holes and the congenital symmetrical double perforations of the parietal bones, of which the cranium in question is in our opinion an undoubted example. The cranium was found in the churchyard at Eastry, near Sandwich, and the inference is that it is at any rate not prehistoric.* There is no evidence of inflammatory change in the neighbourhood of the perforations; in short, the position, and the symmetrical nature of the foramina, associated with other similar instances, one diagnosed during life and known to be congenital, along with the evidence (positive and negative) derived from an examination of the perforations themselves, compel us to dismiss at once the view of their formation suggested by Dr. Munro, and to place the perforations in this cranium among those of congenital origin.

Relation to Parietal Depressions.—It does not appear as if parietal perforations were related in any way to the symmetrical parietal depressions recorded by Humphry (6), Shepherd (9), and others (10). The latter appear to be congenital depressions in some cases, though they are regarded by Shepherd as due frequently to senile changes in the temporal artery. They are due to a deficiency in the outer table; and the inner table is not affected. The normal parietal foramina may be present along with them, and the examples recorded do not agree in position with the situation of parietal perforations, being situated further forward on the bones.

Relation to the Parietal Foramina.—The situation of parietal perforations in relation to that of the normal parietal foramina has led to the very natural suggestion by Turner, Humphry, and others, that the perforation is due to an alteration in vascular conditions, an enlargement in size of meningeal vessels, or an increase in the number of vessels in the position of the parietal foramina.

Broca (4) indeed regards the parietal foramina themselves as abnormal. While they are not an essential characteristic of the mammalian parietal bone as a rule—we have only found them in a bear, an ox, and a leopard among the skulls in our possession—there can be no doubt that they are a normal occurrence in the human parietal bone. Out of 204 adult parietal bones examined, we have found the foramina present in 66 per cent., absent in 33 per cent., and present as a single median hole in 1 per cent.

---

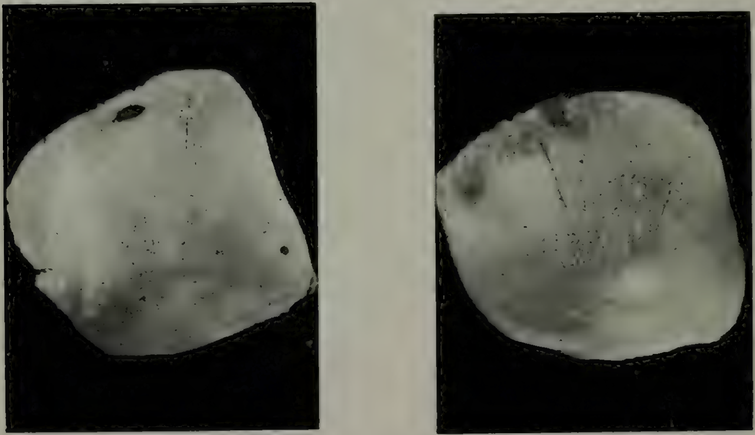
* There is little or no history attaching to the Eastry skull in the Museum. The words *Eastry Churchyard* are in the handwriting of Brian Faussett, by whom the splendid collection of Anglo-Saxon objects from mound graves in Kent now in the Mayer Museum was so carefully and methodically made. The skull was included in the collection when it was acquired by Mr. Mayer; but in the MS. volume describing and figuring the objects in detail there is no mention of it. It is, therefore, almost certain that it had no connection with the Anglo-Saxon interments. Eastry Churchyard has existed, however, from a very ancient date.—Ed.

At the same time it is difficult to understand how even a considerable vascular disturbance, such as a blood island or a circulus venosus, much less a mere emissary vein or meningeal artery, could account for perforations of the size of those recorded.

With the object of ascertaining if the arrangement of the diploic veins in normal crania would throw any light on the conditions, we have filed off the outer table of the skull from five crania. In the cases examined the arrangement was fairly regular throughout. A large posterior temporal vein collects from the upper part of the parietal bone, and communicates in some cases with the occipital vein. In one case a "circulus venosus" was present (but not in the position of the perforations), but the bone was as well ossified within the circle as elsewhere.

Ossification of the Parietal Bones.—The examination of ossifying parietal bones throws some light upon the formation of foramina, depressions, and perforations. In all our specimens of fœtal parietal bones, there was only one example of apparent ossification from more than one centre. In a three months' embryo the bone formation is occurring in two separate areas which are joined together, however, along a line which passes vertically down the centre of the bone. The examination of eighty-five parietal bones in nine months' fœtuses shows the existence of a very constant cleft in the upper border of the bone, in the position of the parietal foramen, formed by a vessel which produces a rounded or oval notch (Fig. 10) at the outer angle of the cleft. This cleft is present in seventy specimens. In fifteen cases it is absent or indistinguishable from the numerous small serrations along the upper border of the bone.

The presence of this emissary vessel is thus able to retard the bone formation in the situation of the parietal foramen. In six cases out of the eighty-five, there were remarkable thinnings, even (in two cases) perforations in the parietal bones, placed symmetrically in one or more situations (Figs. 9, 10, 11). When present, these perforations are oval in form, are due to



Figs. 9, 10.—Parietal Bone of Two Nine-Month Fœtuses Perforated and Thinned.

excessive thinning of the bone, are symmetrically placed, and not always in the same position. They may be present along with thinnings of the bones, and along with the clefts representing parietal foramina. They do not occur in the exact situation of the parietal foramen. When the bone is thinner than usual, it has a cribriform character.

Both thinnings and perforations in the fœtal bones look exactly as if, owing to inequality of growth in the cranium and cerebrum, pressure had been exerted upon the ossifying parietal bones by the subjacent cerebral convolutions. But the usual parietal perforations occur in the situation of the normal parietal foramina. It has been shown that the existence of the usual vessel or vessels in the ordinary course of events retards the bone formation.

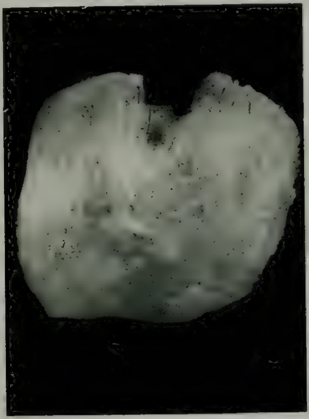


Fig 11.—Parietal Bone of a Nine-Month Fœtus Perforated and Thinned.

It is conceivable that in certain cases, it may be along with larger or more numerous vessels, the same inequality of growth and consequent pressure of the cerebral convolutions may keep open and enlarge this embryonic cleft, and so give rise to the large perforations present in some few cases. In one of our cases there is coalescence of the perforations across the middle line ; and in another a suture connects them together. The idea of such a cause being responsible is supported by the fact that in several of the examples recorded the cranium has a microcephalic character, or there is partial or complete obliteration of the cranial sutures.

One is inclined, therefore, to causally associate the general condition of the cranium described, arrest of development of the base, closure of sutures, and microcephalic character, with the existence of these enormous perforations of the parietal bones.

Bibliography.

(1) Cunningham and Telford Smith, *Scientific Transactions of the Royal Dublin Society*, vol. v., series 2 (viii.), 1895.

(2) Turner, *Edin. Med. Jour.*, August, 1865, p. 133.
(3) Wrany, *Prager Vierteljahrschrift*, part 2, 1866; *Jour. of Anat. and Phys.*, 1867, vol. i. p. 152.
(4) Broca, *Bulletin de la Societé d'Anthropologie de Paris*, March, 1875.
(5) Broca, *ibid.*, May, 1875.
(6) Humphry, *The Human Skeleton*, p. 243.
(7) Greig, *Jour. of Anat. and Phys.*, vol. xxvi. p. 187.
(8) Greig, *Brit. Med. Jour.*, vol. i., 1899, Report; *Edin. Medico-Chir. Soc.*, 1899.
(9) Shepherd, *Jour. of Anat. and Phys.*, 1893, vol. xxvii. p. 501.
(10) Maier, *Virchow's Archiv*, vol. vii. p. 338.
(11) Humphry, *Jour. of Anat. and Phys.*, 1874, vol. viii. p. 136.
(12) Munro, *Prehistoric Problems*, 1897, Blackwood.

The Age of the Surface Flint Implements of Egypt and Somaliland.

By Henry O. Forbes, LL.D.

In a previous *Bulletin* (vol. ii. p. 76) I described the collection of flint implements, now in the Mayer Museum, made in Egypt by Mr. H. W. Seton-Karr, and remarked at the same time also on others gathered by him in Somaliland.

My views have been honoured by criticism and remark in several publications, and also in letters by well-known archæological authorities, addressed to me personally, in which some of my critics assent and some dissent from my opinions. The correction of some errors and misunderstandings into which I have fallen, as well as the importance of the statements thus received or published—for which I desire to thank the writers very cordially—call for recognition, adjustment, or reply in these pages in which the original Paper appeared.

In order that the reader may have the main conclusions of my former article before him, I repeat here the sentences in which I summed up my observations:—"To sum up these remarks," I said, "I have described with some minuteness the implements, with the localities where they were found in the Wady el* Sheikh, because of the magnitude of the collection and the conditions under which it was discovered. I have, by comparing these flints with others dated by Professor Petrie's labours, indicated the age to which they probably belong as the XIIth dynasty, going back perhaps, but not probably, to the IVth dynasty, but also with great likelihood coming down to a much more recent date, as the views of the present condition of the shafts (on p. 104) suggest. I have shown that various depths of 'æonic tinting' (even to the deepest 'Palæolithic' patina) and a soft, polished surface (both of which are characters long depended on as sure marks of flints of high antiquity) have been acquired far within the historic period; that implements which would unhesitatingly be classed as Palæolithic from their form, patina, and surface condition, occur in association in the same workings with those I have assigned to the XIIth dynasty; but I can find no reason for referring them to a higher antiquity; that many of the so-called 'palæolithic' finds by Petrie and Quibell on the desert surface are, just like the Abu Sharhein flints, not to be distinguished from many of those in this Museum found by Seton-Karr on the surface of the Theban plateau, and in the Wady el Sheikh mines; and that as many of the plateau implements have been found in close association with nodules and the flakes struck from them, it seems impossible to believe that these could remain (even in a single instance) undisturbed from the Palæolithic Age of Europe to the present time, when the forest under which they were made, and the forest soil on which they reposed, have been entirely carried away. This reasoning applied to the Somaliland implements shows that they must be of an age much more recent than palæolithic, and probably even comparatively recent.

---

* I find from Prof. Sayce's letter that *el* Sheikh should be more correctly written *es* Sheikh.

"The conclusions it seems to me legitimate to draw from a study of the collection here described, are that rude and Palæolithic forms, amount and depth of patina, and surface condition are characters which cannot be depended on to fix the date of stone implements when there is no possibility of determining the geological age of the strata whence they have come, and in the absence of associated faunistic remains. Also, that the similarity, and even identity, of form in the stone implements of two widely separated localities are of themselves insufficient evidence of contact between the races who made them. And, likewise, that none of the surface 'Palæolithic' implements from Egypt and Somaliland have yet been clearly proved to belong to that period, while the probability is that the bulk of them are of much later date."

On the 15th March, 1900, Mr. **Charles H. Read,** Keeper of Ethnology in the British Museum, Secretary of the Society of Antiquaries, in exhibiting before the Society on that day a number of the flint implements from Egypt, collected by Mr. H. W. Seton-Karr (*Proc. Soc. Antiq., Lond.*, XVIII., p. 114) made the following remarks:—" . . . from the occurrence of great quantities of such relics in all stages of manufacture it has been assumed, with good reason, that the flint was worked and the implements made" where found. "The importance of the discovery as bearing on the antiquity of certain types of implements in Egypt and the length of time, only a few thousand years, necessary to produce a deep patination has been pointed out in detail by Mr. H. O. Forbes in the *Bulletin of the Liverpool Museums* (vol. ii., p. 77*ff*, 1899-1900), and there a full statement of the evidence will be found. The types of implements range from something nearly approaching to that ascribed to Palæolithic times down to the carefully chipped flints which are assigned to the XIIth Dynasty. But it is assumed by Mr. Forbes, and his arguments seem sound, that the whole of the objects found by Mr. Seton-Karr are of one period, and that naturally the latest. *If this be so, and there seems no reason to doubt it, deep discolouration from exposure to the air can no longer be accepted as a proof of high antiquity for flint implements in Egypt.** There are other points brought forward by Mr. Forbes, which are of great interest in the study of the question of Palæolithic man in Africa, and Fellows are referred to the *Liverpool Bulletin*, which is fully illustrated with figures of the implements for these as well as for the arguments supporting the statements here brought forward."

In his Presidential address to the Anthropological Institute of Great Britain on the 30th January, 1900 (published in January, 1901) the same writer—*apropos* of the occurrence in the Knysna caves in South Africa of "very rude stone implements" which were certainly "the productions of previous generations of existing natives"—remarked:—"I have a strong impression that it will be found that the stone implement question will have to be studied on its merits and independently of the familiar classification of more northern lands, and I shall not be surprised if it should turn out that the mass of so-called Palæolithic types found in various parts of the African continent are in reality of comparatively recent date."

---

* The italics are the present writer's.

On the 31st May of the same year (1900) Sir **John Evans** read a short paper before the Royal Society of London, with the title of "Palæolithic Man in Africa," in order to controvert my views and substantiate his own. "In April, 1896, just four years ago," he said, "I ventured to call the attention of the Society (*Roy. Soc. Proc.*, vol. LX., p. 19) to some palæolithic implements found in Somaliland by Mr. H. W. Seton-Karr. In doing so, I pointed out the absolute identity in form of these implements with those from the valley of the Somme and numerous other pleistocene deposits in North-western Europe and elsewhere; and I cited others from the high land adjoining the valley of the Nile and from other places in Northern and Southern Africa. I was at the same time careful to point out that though there could be no doubt as to this identity in form, no fossil mammalian or other remains had been found with these African implements. I did not, however, hesitate in claiming them as palæolithic.

"Since the publication of my short note, an extensive collection of stone implements formed in Egypt by Mr. H. W. Seton-Karr has been acquired by the Mayer Museum at Liverpool. I have not had an opportunity of examining the specimens, but a detailed account (*Bull. Liverp. Muss.*, II., Nos. 3 and 4, Jan. 20, 1900; *Nature*, April 19, 1900, p. 597) of them, with numerous illustrations, has been published by the Director of the Liverpool Museums, Dr. H. O. Forbes. The majority of the implements are of Neolithic Age or even of more recent date, and with the account of these I need not here concern myself; but the author is at considerable pains to dispute my view that the instruments of palæolithic forms belong to the Palæolithic Period. As he says, Mr. Seton-Karr's statement that he sometimes found spear-heads 'on the ground surrounded by a mass of flakes and chips as though the people had dropped their work and fled,' is very suggestive and important. He adds, however, that 'one such occurrence is almost sufficient in itself, I venture to think, to disprove the high antiquity claimed by Sir John Evans for these implements.'

"Were it certain that the so-called spear-heads were really of palæolithic form, and had the flakes and chips been fitted on to them so as to reconstitute the original blocks of flint, as has been done in the case of undoubted palæolithic specimens by Mr. Spurrell and Mr. Worthington Smith, the question would still remain to be discussed as to the condition of the localities in relation to subäerial denudation.

"It is, however, hardly necessary to discuss these points, as some recent discoveries made in Algeria will, I venture to think, go a long way towards settling the question. I propose, therefore, very briefly to state their nature. About sixty miles to the south-west of the town of Oran, and about ten miles to the north of Tlemcen, on the plateau of Remchi, about a mile to the south of the River Isser, lies a small lake known as Lac Karâr. It occupies a depression in lacustrine limestone of comparatively recent geological date, superimposed on beds of Lower Miocene Age. The level of the water, which is some 15° centigrade warmer than that of the ordinary springs of the district, and appears to be derived from some deep-seated source, seems to be about 600 feet higher than that of the River Isser. The lake originally filled a much larger part of the depression than it now does, and from its old bed a considerable amount of material has of late years been extracted for the

Service des Ponts et Chaussées. This material consists of sand and gravel rich in iron pyrites, in the midst of which lie, pell-mell, bones of animals and stone implements fashioned by the hand of man.

"These have for some years been diligently collected by M. Louis Gentil, a geologist, and form the subject of a memoir that has just appeared in '*l'Anthropologie*' (Tome XI., 1900) by my friend M. Marcellin Boule, of the Galerie de Paléontologie at the Jardin des Plantes, Paris. Some 200 specimens of implements have been submitted to him, of various sizes, and all or nearly all of well-known palæolithic forms, including several with a broad chisel-like end, of which examples have been found in the laterite of Madras and the gravels of Madrid. They are for the most part formed of an eocene quartzite, though some smaller specimens of the type known as that of 'le Moustier' are formed of flint. The *facies* of these latter is not so distinctly palæolithic as that of the former, of which some, through the kindness of M. Marcellin Boule, are exhibited.

"The most important part of the discovery is that which relates to the mammalian remains found with the implements. These are of elephant, rhinoceros, horse, hippopotamus, pig, ox, sheep, and certain cervidæ. I will not detain the Society with the details given in M. Boule's memoir, but I may call attention to the fact that the elephant is not the African elephant, but one more nearly related to the quaternary or even pliocene elephants of Europe, to which the designation *atlanticus* has been given. Some teeth seem closely allied to those of *E. meridionalis* and even *E. armeniacus*. Having regard to the whole fauna, M. Boule arrives at the conclusion that it is identical with that of the fossiliferous deposits of Algeria, which from their topographical or stratigraphical characteristics have been assigned to the Quaternary or Pleistocene Period. He also cites other instances in Algeria, such as Ternifine and a station near Aboukir, in which palæolithic implements have been found associated with the remains of a similar pleistocene fauna.

"Altogether, these recent discoveries in Northern Africa tend immensely to strengthen my position with regard to the truly palæolithic character of the implements found in other parts of that vast continent, and I am tempted to bring for comparison some few specimens from South Africa. One of these, found by Mr. J. C. Rickard at the junction of the Riet and Modder twenty years ago, is almost indistinguishable from those of the Lac Karâr, as is also one from the valley of the Embabaan in Swaziland. But the most remarkable is an implement of typically palæolithic character found in 1873 under 9 feet of stratified beds at Process-fontein, Victoria West, by Mr. E. J. Dunn. (See also a paper by M. E. T. Hamy in the *Bulletin du Muséum d'Histoire Naturelle*, 1899, No. 6., p. 270.) . . ."

Professor **A. H. Sayce** has favoured me with the following valuable notes and criticisms on my paper:—

"Helwân, March 16, 1900.

"Many thanks for your highly interesting and important Paper on Seton-Karr's stone implements. If I do not accept your conclusions it is because I can supplement and in some cases correct the data upon which you have had to depend.

"The galleries in the Wady-es-Shêkh were visited by me before Mr. Seton-Karr saw them, and I have inserted a notice of them accordingly in the new edition of *Murray's Handbook*, p. 698. Large quantities of the flint were brought to the bank of the Nile at the northern corner of the Gebel Shêkh Embarak, and there worked into various tools and weapons. But all these latter belong to the late Neolithic Age, and I have found them associated with glass and pottery of the Roman period. Among the many hundreds of these I have discovered there are none *which in any way resemble those collected by Mr. Seton-Karr in the Wadi*, with the single exception of the forms 21 and 25 (figs. 1 and 2).

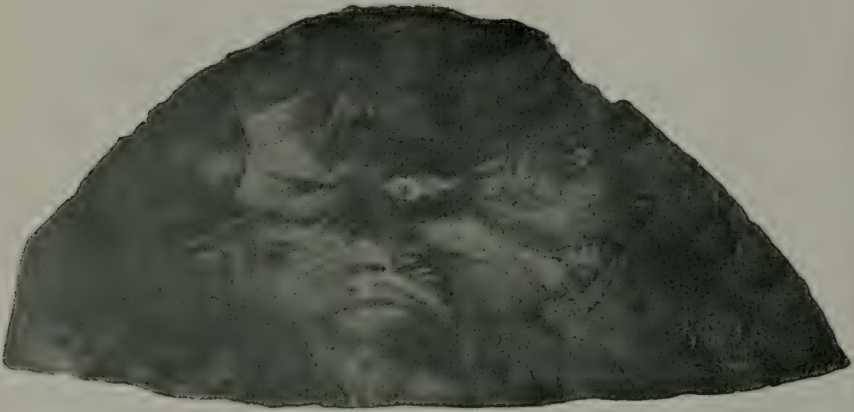


FIG. 1.

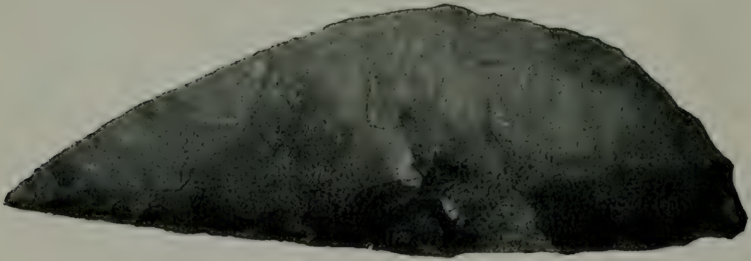


FIG. 2.

FIGS. 1 AND 2.—IMPLEMENTS IN THE MAYER MUSEUM, FROM THE SETON-KARR COLLECTION.

"I agree with M. de Morgan in believing that the knives represented at Beni Hasan are of copper ; his reply to Mr Griffith, in fact, seems to me to be conclusive, and I very much question whether any of the flint tools found by Petrie at Kahūn were contemporaneous with the XIIth Dynasty. Wherever else stone implements have been found in a site later than the age of the IVth, or at most of the VIth Dynasty, excavation has shown, as for instance, at El-Kab, that there were 'prehistoric' tombs and presumably 'prehistoric' settlements on the spot. I ought to add that his excavations at El-Kab caused Mr. Quibell to come over to M. de Morgan's views.

"I have found stone implements of early type on later sites, as, for example, a flint knife of your Fig. 32 type (fig. 3) at Elephantinê, and a prehistoric axe head in the ruins of a Roman town in Nubia, but they had been brought from elsewhere and re-used as hammers or the like.

"As you know, 'prehistoric' flint tools have been found in large quantities in the tombs of the Kings of the Ist and IInd Dynasties at Abydos. Four years ago a flint bracelet was discovered at Neqada with a hieroglyphic inscription on it of the same date.

"But between these 'prehistoric' flints and the palæoliths found on the plateau there is a very marked difference, and neither M. Legrain nor myself have ever come across any types on the plateau which can be justly identified with those of the 'prehistoric' races. As M. Legrain has shown, the plateau palæoliths are usually found on the site of a manufactory of tools at the mouth of an aqaba. See his *Etude sur les aqabahs*, in the *Bulletin de l'Institut égyptien*, 1898.

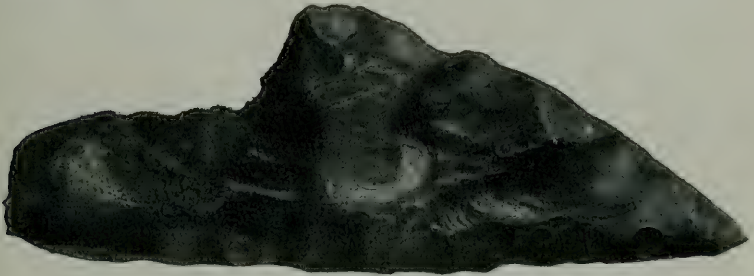


FIG. 3.

IMPLEMENT IN THE MAYER MUSEUM, FROM THE SETON-KARR COLLECTION.

"I have myself discovered palæoliths embedded in the breccia on the top of the plateau above El-Kab; they are figured in de Morgan's *Recherches* II. p. 4.

"To sum up: my own belief is that

"(1) Stone tools were used by the aboriginal tribes of Egypt as late as the age of the IVth and possibly of the VIth Dynasty; but after that date they were not employed by the settled population except in an ordinary way.

"(2) The plateau palæoliths go back to a time when the desert was still covered by streams which formed breccias.

"(3) Mr. Seton-Karr's galleries probably belong to the prehistoric period, *i.e.*, from a time anterior to the entrance of the Pharaonic Egyptians into the valley of the Nile down to the age of the IVth Dynasty.

"In the Birmingham Museum there is a fair collection of plateau flints given to it by Mr. W. Myres."

Professor **A. H. Keane** writes me, under date of 17th February, 1900:—"I am in complete accord with your criticism of Sir J. Evans' inference (p. 114) and with your general conclusion that such identical types of palæoliths were, as you say, found out independently by early man in different regions. They prove no necessary contact or mutual influences, but give strong support to my views regarding the unity of the human family, its dispersion from a common centre, and the *independent* evolution of early races and cultures in different geographical areas. I have worked out these views in *Ethnology*, and more fully in *Man, Past and Present* (Chap. I.). . . . If you care to look up my references you will find strong support given to your conclusions, and also at pp. 478-9 some data on the climate (rainfall) of Egypt in early times bearing on these questions. Your remarks on patina as a test of age are extremely interesting, and I don't remember having seen the subject so well treated elsewhere."

Professor **Rupert Jones** has sent me the following note:—"March 13th, 1900. I am delighted with your opinions and conclusions. . . . I have never doubted that under similar conditions of life and mental powers, with similar material to work upon, and with similar wants and habits, men have always made similar stone tools—beginning with rough work in each community and making better finished and more useful tools in successive generations as long as the tribe lasted.

"Your last paragraphs at pp. 114-115 [*Bull.* II.] are especially sound and good. Stone tools of the same form as those referred to at page 114 are found also in South Africa and India—in fact are cosmopolitan."

Professor **W. M. Flinders Petrie** wrote me the following notes on April 10, 1900, in correction of several points in which I regret I had misunderstood him, or failed to convey his meaning accurately, and I gladly take this first opportunity for rectification:—

"On a few points I fear I have not been quite explicit, and so you will pardon my noting—perhaps reiterating—them.

"Page 112.* The association of flakes in groups, apparently as worked, is common on the high plateau. But that might co-exist with the denudation since the pluvial age, as these patches of flakes are all on level ground with no wash either way, and the removal of soil *after* a rainy age would be by wind and sun-crumbling. It is a different condition to flints left on soluble and washable strata in England; in Egypt they are on a few inches of hard marl resting on solid limestone, and hence not liable to be washed over.

"Page 111.† None of the regular ovoid flints of the prehistoric settlements are like the palæoliths of the high desert. The two types are quite distinct.

"Page 107.‡ The flint on which I base the statement about the age of colouring is an ovoid of the exact type of the Settlement flints, and hence dated to that age. But it was lost out on the desert, and so had been exposed to exactly the same influences as the older palæoliths, but only for 7000 years. Of course, I should not expect any colouring on flint in graves.

"Page 115.§ I have found many flints deep in undisturbed Nile gravels belonging to the true high Nile age, and not in the face of a ravine like Pitt-Rivers'. They are in my collection here.

---

* The passage is as follows:—It will be observed that the flints of "palæolithic type" found by Professor Petrie on the Nile plateaux were, as he tells us, lying "*scattered around the centres where they were actually worked.*"

† The passage Professor Petrie refers to reads:—"Now, Mr. Quibell and Professor Petrie's explorations seem to prove that the rough and rudely chipped 'ovoid flints,' 'the common domestic implements of the New Race' (which, as pointed out above, are hardly distinguishable from the 'palæolithic types' of the Ballas Desert) are coeval with the 'finest examples of such work known from any country or age.'"

‡ The passage in my article here referred to runs:—"Now, some guage of the rate of this 'æonic tinting' is given us by so great an authority as Professor Petrie:—'The old desert surfaces are stained dark brown by exposure during long ages, and this colour, varying from orange to black, is characteristic of all the flints of early age from this plateau. It is certain that only a faint tinge of brown is produced on flints that are at least 7000 years old under the like conditions; and this may give a slight scale of the ages that have past since flint was worked here by palæolithic man.'"

§ I quote the paragraph to which Professor Petrie refers:—"The only flint implements from Egypt known to me to have yet been found embedded undoubtedly in position were discovered by General Pitt-Revers in the stratified, indurated, gravelly *debris* at the mouth of a wady—the Babel Moolook—near the Tombs of the Kings, which all geologists who know the spot, agree must have been deposited far back in pre-historic times."

"I by no means wish to attack your summing up. But, for my own part, the evidence of historic age for the darkened flints seems to me far weaker than the evidence of undarkened flints in every case in which I can connect them with an historic time.

"You will be glad to hear I have cleared many of the kings' tombs of the Ist Dynasty, and have many flint fragments and some whole knives absolutely dated to that age, so I hope you will come and see them here [University College] in July."

It will be observed that these authorities are not all agreed upon the age of the surface flint implements of Palæolithic form found in Egypt and North Africa. Many of them do regard the flints as belonging to the Palæolithic Period, and I would venture here to state some of the reasons that make it still difficult for me to accept this great age for the surface implements from the plateaux and the galleries of Egypt and of Somaliland.

In his paper to the Royal Society, quoted above, Sir John Evans remarked that recent discoveries by M. Boule in Algeria "go a long way towards settling the question" and strengthening his position "with regard to the truly Palæolithic character of the implements found in other parts of" Africa; increasing "*this probability*" elsewhere (Egypt Expl. Fund Annual Report, 1899-1900, p. 29) writes Sir John Evans, "*to the verge of certainty.*" M. Marcelin Boule has very kindly sent me a copy of his memoir, of which Sir John Evans gives (necessarily) but a short abstract in his paper to the Royal Society. In Lac Karâr implements of rude form have been found in association with bones of elephant, horse, hippopotamus, rhinoceros, and other animals supposed to have lived in the region in Quaternary times. Assuming that these rude implements are truly of the Palæolithic Age of Europe as fixed by their association with bones of a contemporaneous fauna, surely this fact can in no greater degree support the view that implements of Palæolithic form found on the surface of the Egyptian desert or Somaliland plateau, or in S. Africa, unassociated with animal remains and unrelated to any dateable strata, are also of that age, any more than our knowledge of implements of true Palæolithic Age in the Valley of the Somme (when N. Africa and Europe were united) can.

Without presuming to question the accuracy of M. Boule's determination of the age of the implements and of the species to which belong the animal remains in this curious Algerian pond, one cannot but be struck with its peculiar and, in regard to geological deposition, its abnormal physical features. Its waters come from a subterranean source, and have not apparently been supplemented by any surface inflow which could have conveyed into the depression either the bones or the flints, which now lie "pell-mell" in the sand and gravel of the old bed of a dried-up portion of its bottom. The elephant remains, according to M. Boule, do not belong to an African species, but to one more nearly related to the Quaternary or even the Pliocene elephants of Europe. "Cela suffit pour etablir," adds M. Boule, "l'antiquite de notre gisement prehistorique." The rhinoceros remains are ascribed to *R. simus*, "actually living in the interior of Africa;" the "horse" teeth belong to a species of zebra, "very near, if not identical with, the still living *Equus burchelli;*" the hippopotamus remains, M. Boule regards as those of the present African species, though perhaps of a larger race; the pig, the deer, the gnu, and the sheep are referred to species also still living; the species to which the *Bubalus* and the *Alcelaphus* bones belong it has been impossible to determine with certainty. "Assuredly," adds M. Boule, "this list of species has no correspondence with the list of animals which, in the centre and west of Europe, accompany the most ancient Palæolithic flints; but I have already insisted . . . on the contrast which exists between the Quaternary fauna of Algeria and that of Europe. I have shown that the former is essentially an African fauna, that is to say, is almost exclusively composed of genera actually inhabiting the Dark Continent, and mainly peculiar to it. I have pointed out in regard to certain extinct species, such as the *Elephas atlanticus*, which is found in Lac Karâr, that the bulk of the Quaternary species fossil in Algeria are still living in the south of the continent, where they are emigrant species, in the same way as the majority of the boreal forms of the Quaternary deposits of our country are relegated to-day to the extreme north of Eurasia or of America."

The remains of the animals and the flint implements must, it is therefore evident, have reached the lake not by being floated, but by falling, in to it, while the sediment collected in its bottom is due partly to the detritus from the subterranean pipe and from the sides and margins of the walls of the depression. The question cannot but suggest itself—Did the flint implements get into the pond contemporaneously with the now long extinct European elephant; or are they even much more recent?

One may imagine also that in a hollow fed by a subterranean supply, the water may not have risen always in a quiet stream, but may have often been ejected with a force capable of mixing up the materials lying on the bottom.

The absence of true bedding—the real geologic chronometer—is, of course, a serious loss in trying to assure oneself of the chronology of the Karâr deposits; especially as so many of the fauna of the true Palæolithic Age of Europe, some of which are found elsewhere in Algerian Pleistocene deposits, are conspicuous by their absence.

It is noticeable, moreover, that if the faunistic remains are of Palæolithic Age, the species to which they belong have remained without variation to the present time. One may also ask—Is there any possibility of the fossil remains of the elephant having been by some means brought from elsewhere and dropped into the lake at a time subsequent to the animal's vanishing from Algeria, just as Moa bones are found in Maori middens after the date of the bird's extinction? and How are the earlier to be separated from the later remains, or collated with the implements, some truly Palæolithic in form others less so, contemporaneous with them? There rises, therefore, just a doubt whether after all the implements rescued from this pond belong to the Palæolithic Age of Europe. But, whether this side issue be decided for or against the reputed age of the Karâr deposits, the fact of *their* being Palæolithic would not, I repeat, go one step along the way towards proving—far less bringing to the 'verge of certainty'—that the *surface palæoliths of the Egyptian and Somaliland plateaux* are of that age also.

Sir John does not say whether the implements shown at the meeting from Imbabaan and from the junction of the Riet and Modder Rivers were found on the surface or in a dateable stratum. Are they more certainly palæolithic than the tools from the Knysna Caves?

According to the opinions (stated shortly) of various authorities who have studied the question of the age of flint implements in Egypt, the position is as follows:—

Egypt, as we know it, came into existence in the Pleistocene (or Palæolithic) Age of Europe (*Petrie*), when Europe was united to N. Africa, and when the maritime plain (or Lower Egypt) was a gulf or estuary of the then existing Mediterranean.

Palæolithic man had, before the Nile Valley was formed, his home amid abundant vegetation where he could live and hunt his game, on the top of the high plateau, which the Nile has since cut down through to a depth of 1400 ft.—(*Petrie.*)

The plateau palæoliths go back to a time when the desert was still covered by streams which formed breccias.*—(*Sayce.*)

Palæolithic man continued in Egypt till the Nile was as low as its present level. "We see Palæolithic man scattering his massive flint weapons, until the age of Nile mud (beginning about 7000 B.C.) made agriculture possible, and a Caucasian race ousted the Palæolithic folks, whose portraits were left us in the figures found in the earliest graves. We see this oldest race of man to have been of the Hottentot type, but even more hairy than the Hottentot, with the traces of his original northern habitation not yet wiped off by tropical suns."—(*Petrie.*)

Palæolithic man left worked flints in large numbers on the high plateau, associated with the flakes struck from them, round the centres where they were actually worked; but they all lie on level ground with no wash either way; the denudation of the soil after a rainy age being by wind and sun-crumbling.—(*Petrie.*)

Of the flints from the Wady es Sheikh and Wady Sojoor many are identical with those from the high Egyptian plateaux and from Europe. Fig. 4, for instance, which is a pure Chellean 'knuckle-duster,' is almost indistinguishable from a palæolith from Somaliland, figured on Plate ix. fig. 1. *Journ. Anthrop. Inst.*, vol. xxvii. (1897); while figs. 39 and 40 [figs. 5 and 6, p. 58] from the Wady Sojoor are to all intents identical with the "mells" or pounders from the Knysna Cave in South Africa "made by previous generations of existing natives."—(*Seton-Karr's collection.*)

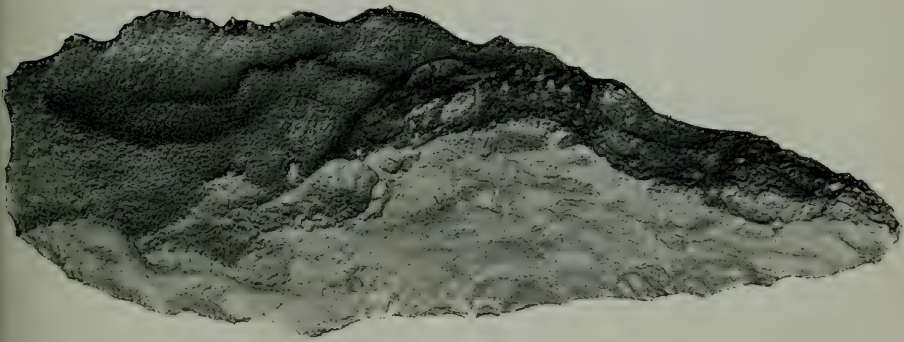


FIG. 4.

IMPLEMENT OF PALÆOLITHIC FORM IN THE MAYER MUSEUM, FROM THE SETON-KARR COLLECTION.

Implements of true Palæolithic *form*—and sharp as the day they were made—are associated in both the above-named Wadys with others of a more Neolithic *facies*; the patina of the latter being often as deep, if not deeper, than that of the former, both categories being of the same material and lying together in the same workshop, with no evidence against their being of the same age.—(*Seton-Karr's Collection.*)

---

* My friend Sir H. Howorth reminds me that streams do not form breccias except in mountain torrents; but that the formation of the breccias, however, shows a very different condition of things from what now prevails.

The true Palæolithic form and patina is met with in the Abu Sharhein flint, which is of proved historic date, and in the rude "palæoliths" from the Knysna caves in South Africa, known to have been made by "previous generations of existing natives."

In the plateaux and galleries of the Wady es Sheikh [and Wady Sojoor] the implements and the heaps of excavated material are lying on the bare surface of the desert as actually accumulated and left by the artificers; and, as the photographs show besides, they could not have rested on humus; numerous runnels or dry rain courses also can be seen channeling the surface of the ground towards the Wady gorges.—(*Photographs by Seton-Karr.*)

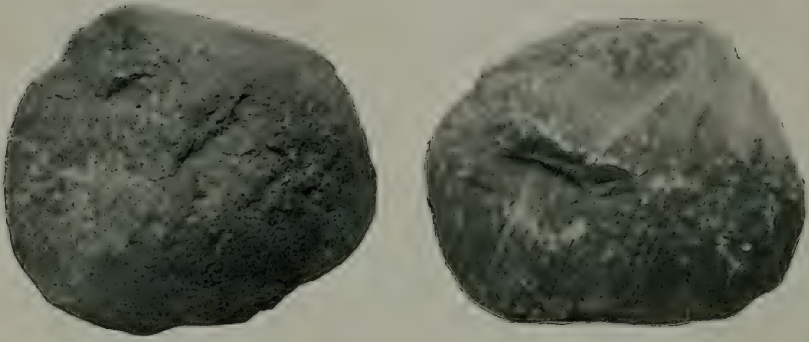


Fig. 5. Fig. 6.

Figs. 5 and 6.—Implements in the Mayer Collection from the Wady Sojoor, Collected by Mr. Seton-Karr.

Worked flints from the "upper part of the groups of objects from each" of the tombs of the Menite kings were found at Abydos. These being dated, "are of great value in tracing the history of flint working in Egypt, and its transition from the prehistoric to historic times."—(*Petrie.*)

"Large worked flints of Palæolithic Age" were discovered also in the Menite tombs at Abydos (*Petrie*); "such as have not infrequently been found on high land adjoining the Valley of the Nile, but as to the age of which some question has arisen"—(*Evans.*)

Flint implements of Palæolithic *form*, therefore, have been made from the Quaternary to our own times in various parts of the world. It is, therefore, impossible to use *form* to determine the *age*; or to assign different periods to different forms when they occur together in the same workshops (as they do in the Es Sheikh and Sojoor mines). It is consequently misleading and unscientific to apply the term "implements of Palæolithic Age" to those of Palæolithic form, when neither remains nor strata co-exist by which the chronology can be fixed. The term proposed by M. Deniker, "Palæolithic stage of civilisation," in being accurate and scientific, is preferable.

If Palæolithic man occupied the high plateau, his weapons and implements must have been left on the humus of the forest, for when the diluvial period passed away (together with its fauna and forest), he must have migrated from the famine-stricken desert to some locality where food was to be found and tools would be of use to him. The torrential rains would certainly wash down to the river the great mass of the implements embedded in the humus. But is it reasonable to think that those lying on surfaces even with "no wash either way," which finally reached the bed-rock, were lowered down so carefully through the humus that when the roots, the remnants of vegetation and the soil dried to fine powder, were being borne away by the wind, the cores and the flakes struck from them could remain to the present day undisturbed, and also be not deeply eroded by the drifting silex which has so deeply sand-worn the steles of the Menite kings—which are of yesterday when compared with the Quaternary age? If Palæolithic man ever inhabited the high plateau of the Nile, I cannot believe that the worked flints so frequent there were his implements. If they are his tools (and being still so abundant) many of the same pattern ought to be forthcoming from the high Nile deposits. If true palæoliths be ever recovered from the deposits of the Valley they must be found in association with the remains of the fauna and perhaps of the flora of their own epoch; and till then there can be no indisputable warrant for asserting the existence of Palæolithic man in Egypt.

The large flints in the tombs of the Menite kings which Prof. Petrie ascribes to the "Palæolithic Age" have nothing to show that they are not of manufacture contemporaneous with the tombs. Two questions here suggest themselves—Were the flints collected from the ground to be put into the tombs? or, Are these the tools of the period placed in the tombs for the use of the deceased's spirit in the other world?

I cannot resist the conviction that the whole of the plateau flints of Palæolithic form, as also all those from the Es Sheikh and Sojoor mines, are chiefly of historic age (which must now, according to Petrie's discoveries, be antedated to the age of the earliest known writing—the time of Menes), and even may be as young as the earlier dynasties.

In regard to the Somaliland flint implements, Mr. **Seton-Karr** writes to me:—

"You seem to me to argue that since I found a *spear-head* and *chips in situ* that therefore Evans was wrong in assuming great age for the palæoliths from Somaliland. *But* I found no *palæos* with chips; the *spear-heads* are *Neolithic.*"

While glad of the opportunity of giving correctly Mr. Seton-Karr's opinion on the age of these flints, it may be well in doing so, perhaps, to repeat shortly, and in paraphrase, a synopsis of the published history of the Somaliland implements:—

> "Stone implements are found all over Somaliland"; those above the Issutugan, "lying on the surface in twos or threes on little pillars of earth, or in the bottoms of innumerable little gullies," are Palæolithic.—(*Seton-Karr.*)
>
> Implements found elsewhere—in retired places surrounded by low hills, where there are chips *in situ* and generally no other stones upon the surface besides these worked flints—are early Neolithic.—(*Seton-Karr.*)
>
> "In Somaliland there seemed to be no association of Neolithic forms with those of apparently far earlier date."—(*Evans.*)
>
> The "Palæolithic" site is on the face of a low hill—3 miles in length, 3000 ft. above the sea, 200 ft. above the river—"free from river action, deposition or denudation" (*Seton-Karr*); the implements have been "washed out of sandy or loamy deposits by the action of rain, or sometimes laid bare by the wind."—(*Evans.*)

This low hill is limestone, but covered to a great depth with alluvial deposits "laid down in ancient times," "much solidified, containing boulders of flint and quartzite."—(*Seton-Karr.*)

This ridge or hill seems to have escaped denudation except by rain drops, "which have sufficed to lay bare the implements."—(*Seton-Karr.*)

On the high plateau "marine limestones of probably Lower Tertiary (Eocene) age occur"; and to "the south of Berbera are raised reefs of Pleistocene age" (*Gregory*), indicating, therefore, considerable changes in the level of the land both in early and late Tertiary times.

The Issutugan implements, if of Palæolithic age, have, therefore, rested not on a flat bed-rock without wash either way, but on a deep alluvium on a slope which has escaped denudation "in safety," "free," according to their finder, "from river action, deposition, or denudation," unaffected, that is, by the action of the elements since the Pleistocene of Europe, notwithstanding "the heavy showers which constitute the rainfall in Somaliland" (*Seton-Karr*). One may, perhaps, note in passing that elsewhere the rain falls less indiscriminately both on the evil and the good, in recent if not in Palæolithic times! If these implements have been washed out by rain or wind action, they were necessarily previously buried; but they have now been (most methodically!) exposed over a tract of country *in one even horizon three miles in length.* Some of the implements are eroded, as Mr. Seton-Karr records, $\frac{1}{10}$ of an inch, but the majority (certainly, *all* those seen by the present writer) are as sharp as the day they were made, and the inequalities appear to me to be not the effect of sand-wear, but to have been produced in their manufacture or by sun-flaking. The "palæoliths" from the high plateaux of Egypt, where the exposure has been greater, show still fewer signs of sand-wear.

One would wish to know how of the two sets of implements found on the surface the "early Neolithic" are to be separated from the "Palæolithic." What reason is there for supposing that the Issutugan "palæoliths" (which were found without any flakes around them) were not brought from the "Neolithic" factories, where the nodules and the flakes from them lie side by side? Was it in the pride of their advanced civilisation that the Neolithic inhabitants disdained to use the numerous implements left to their hand on the surface by their Palæolithic precursors, close to the scene of their very laborious operations? Would not the Pluvial epoch predicated by Petrie for Egypt in the Pleistocene Age, have also prevailed in Somaliland, producing a luxuriant vegetation there also, with all the results of a rainy age on a deep alluvium, "river action, deposition, denudation," and washing downwards of the implements? Are the effects of subaerial denudation elsewhere at all similar to what is recorded to exist on the site of these tools? or, Is it likely that these would after such a period be found spread out on a horizon shaved down so evenly for three miles in length as to present no unmistakable signs of denudation?

When Sir John Evans says, as quoted above, that there is apparently no association of Neolithic with Palæolithic forms in Somaliland, he means, I suppose, that the two kinds do not occur together on the site of the great find of Palæolithic tools near the Issutugan River. Still, according to their discoverer, the spear heads found not far off on the surface are Neolithic although unpolished. How the discrimination is made I do not venture to surmise, but shall wait to hear from those who have made the differentiation. If, on the other hand, Sir John holds that all the Somaliland implements are of Palæolithic Age, he is met with this difficulty that some of the tools have been found on the same horizon with the flakes around them, just as left by the workman, and that they have withstood without disturbance, since the Quaternary Epoch, the heavy showers that constitute the rainfall of Somaliland. According to Petrie's latest published statements, Palæolithic man—of Hottentot type, and great hairiness, one of the marks of his original northern habitation—was still inhabiting the valley down to 7000 B.C., and being, according to Sir John Evans, of one race, or living in contact of the closest kind, with the Palæolithic people in Asia, Africa, and Europe. According, however, to the most recent opinion of Professor Petrie, these Hottentot-oid hairy Palæolithic Humans were ousted by another race so far differentiated from them as to be classed as Caucasian. These statements contain enough material for discussion to fill more than the space at our disposal here. While being at present unable to accept either the date to which Palæolithic man occupied—if he ever did so—the Nile Valley, the remarkable somatic characteristics attributed to him, or the ethnic definition of the race that supplanted him, one may ask, in passing: Were these Caucasians in the Neolithic stage of civilisation; or were they more advanced people who had been living conterminous somewhere with tribes of Palæolithic man? If these Caucasians were Neolithic people, what evidence is there against their having made the implements both of Palæolithic and Neolithic forms found in association on the high plateaux of Egypt?

Are not all the puzzling circumstances in the history of the so-called Palæolithic implements both in Egypt and Somaliland to be more easily explained by supposing that they belong to an Age far less remote than the Quaternary—its distance to be reckoned very possibly in hundreds, rather than hundreds of thousands, of years? Until, moreover, unimpeachable evidence for the age of these implements in their association with remains of a contemporary fauna be forthcoming, this most important question cannot be held to be a *res judicata*. Such absolute statements, however, by an authority of world-wide acceptance, that the probability of the surface implements of Egypt and Somaliland being, on the evidence so far adduced, Palæolithic in age, has reached the 'verge of certainty,' can only delay the speedy elucidation of the origin, development, and distribution of man in the African continent.

Notes on some Rare Birds in the Lord Derby Museum.

By Henry O. Forbes, LL.D.

I. Note on a Species of Bittern (*Zebrilus pumilus*) from S. America.

(Plates I., II.—*Ardeidæ.*)

The two birds figured in the above-quoted plates represent a species of Bittern (*Zebrilus pumilus*), specimens of which are rare in museums. The bird is a South American species, which is found ranging from Guiana to Central Brazil. In the National Collection there are only four specimens. In the Knowsley Museum there were three examples, which came to us as part of the bequest to the city by the XIIIth Lord Derby. Unfortunately, the sex of none of these seven specimens is known, and nothing also of their life history.

The two birds figured differ greatly, as will be seen, in colouration, the one being dark and the other rufous. Both are, nevertheless, considered by many ornithologists to be only phases of the same species, and that the dark phase represents the bird in its adult plumage, while the rufous forms are immature birds. The measurements of the dark form, however, in specimens in the British Museum, are smaller than those of the rufous form, a fact rather adverse to the probability of the latter being younger than the former. Dr. Bowdler Sharpe considers the rufous forms to be "perfectly adult," and thinks it must be a "mistake to consider them to be the young of the dark phase." The dark coloured specimens in the National Museum "also seem," according to the same high authority, "to be perfectly adult; but Professor Schlegel has also described [*Mus. Pays-Bas*, *Ardea*, p. 56] a young bird in the dark plumage. Thus I regard the two birds as phases of one species; but it is quite probable that they may be specifically distinct."

The dimensions given by Dr. Sharpe for the British Museum specimens show a marked difference in length—3·5 inches—between the the dark and the rufous forms. Our specimens, which are all mounted, were set up in the days before taxidermy was a "science and art," and it is, therefore, impossible to obtain any satisfactory information by considering them or others, unless in a large series, in this aspect; even the length of the unmounted skin is also always a very uncertain quantity. So in the following measurements, set out in comparison with those given for two British Museum specimens, I have discarded the length dimensions :—

	DARK PHASE.			RUFOUS PHASE.			
	B.M.	L.D.M.	*Average.*	B.M.	L.D.M.	L.D.M.	*Average.*
Culmen - -	1·65	1·31	*1·48*	1·50	1·66	1·50	*1·55*
Wing - - -	5·70	5·44	*5·57*	5·60	5·31	5·63	*5·51*
Tail - - - -	2·20*	1·68	*1·94*	2·20	1·63	1·63	*1·82*
Tarsus - - -	1·50	2·13	*1·81*	1·50	2·06	2·00	*1·85*

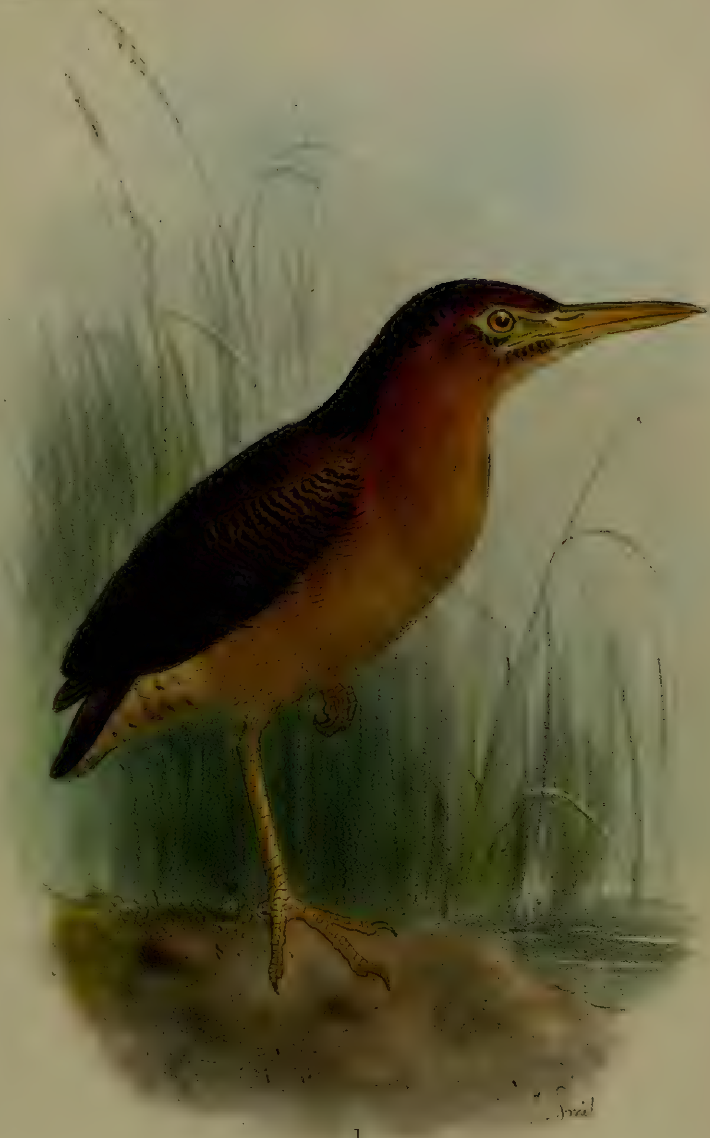
The averages of these dimensions, other than 'total length,' go to show a very slight difference in size of the one form over the other, so small, indeed, that we may infer that they are not due to age. If Professor Schlegel is correct as to the age of his specimen, the dark phased birds are dark from their youth up. It must still remain, therefore, an undecided question whether these two forms belong (a) to the same or different species, (b) to the young and the adult, or (c) to the two sexes of the same species. The measurements and the figures given here are offered as a small contribution to the settlement of these questions.

II. Note on Lord Stanley's Water Hen (*Porphyrio stanleyi*).

In the Lord Derby Museum there has long reposed an historical specimen of a Rail well known to ornithologists as the 'White Gallinule', which was brought to Europe by Sir Joseph Banks (afterwards President of the Royal Society), one of the naturalists who accompanied Captain Cook in the *Endeavour* on the first of his great voyages. Where the bird was obtained is not certainly known; but it is supposed to have been brought from New Zealand. It must, however, have reached this country in June, 1771, the date of the return of the *Endeavour* to England. For the succeeding 30 or 40 years its history cannot be traced; but it is next heard of in the possession of William Bullock, whose Museum was so well known in Liver-

---

* By a *lapsus calami* this measurement is given as of *tarsus* instead of *tail*.

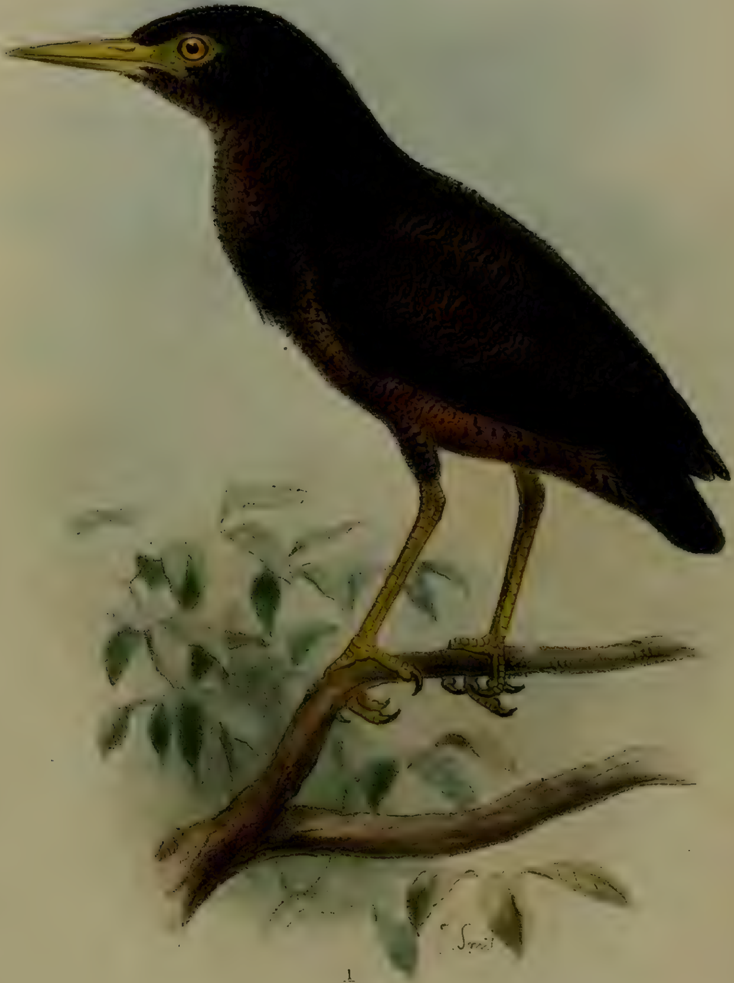


½

J. Smit del. et lith. Mintern Bros. imp.

Zebrilus pumilus, Bp.

BRITISH MUS
TUR



½

J. Smit del et lith. Mintern Bros imp.

Zebrilus pumilus. Bp.

BRITISH M

pool during the first two decades of the XIXth Century. In 1819 this collection was disposed of by auction, at which

> "Lot 60, White Gallinule (F [ulica] alba); New Zealand, rare; brought by Sir J. Banks,"

was disposed of, on the 27th May, to Lord Stanley for £3 3s. With the Knowsley collection, therefore, it was bequeathed by the purchaser, as XIIIth Lord Derby, to the citizens of Liverpool, and was finally handed over by the XIVth Earl to the Free Public Museums, where it has now rested for nearly fifty of the 130 years that have elapsed since it was captured. Unlike most of the birds brought home by Captain Cook it was not mummified; but came into the Knowsley Collection stuffed, and mounted in the ordinary way, but with little credit to the taxidermist.

A few weeks ago it became necessary to submit the specimen to careful examination, as from the lapse of years some signs of what appeared to be deterioration in the limbs and neck were becoming apparent. In the course of this examination conducted with, it is needless to say (when dealing with so rare a specimen), the utmost care, it was a great satisfaction to find that the skin, though so old, instead of being "never in a good condition," as Mr. Rowley has stated in his notice of the bird in his *Ornithological Miscellany* of 1875 (p. 37), was in an excellent state of preservation. Under these circumstances I ventured to have the skin partially relaxed for the purpose I had in view, when to my great surprise it became apparent that the whole of the neck (along with a very small piece on the top of the head) was made up with feathers glued to the skin. On discovering this I had the bird entirely relaxed and dismounted, but found no other part of the skin tampered with. The false body proved to be solidly made of straw and tow, the work, almost certainly, of the same taxidermist who had mounted many of the birds in the Lord Derby collection which had come from Bullock's Museum. It seems therefore not improbable that the bird may have been re-made after it came into Bullock's possession, or, at all events, subsequent to 1790, for it is evident that its pose was modelled from the Plate of the 'White Gallinule' drawn by Miss Stone for White's *Journal of a Voyage to New South Wales*, which was published in London in that year. With the exception of the portions mentioned above the whole of the plumage belonged to the skin, and was in a sound condition. The two humeri were gone; but the ulna and radius of both sides were present, and attached to the ulna of one side was a small fragment, representing the condyles of the humerus. These bones I have had removed for measurement. Nearly the whole of the neck is denuded of plumage, undoubtedly caused by the ravages of moth (which had slightly attacked the underside of the wings also), for the bases of the feathers still remain each in its papilla, and the denudation was not, therefore, as it seemed at first sight, due to slipping of the skin on account of decomposition while the bird was in the flesh. The attached feathers consequently could never have belonged to it, for, besides being themselves perfectly complete, they are of a different character from those remaining on the neck, and belonged evidently to quite a different species of bird. The removal of these adventitious feathers gives our Rail a very different appearance from what it had before.

The species to which this bird belongs has been the subject of considerable discussion. Lord Stanley purchased it as a 'White Gallinule (*F. alba*).' Professor Newton surmised it to be a second species of that 'White Gallinule' brought home by Surgeon-General White from Norfolk Island, and figured in 1790 in the *Journal* of his voyage, a species which is supposed to have also inhabited Lord Howe's Island, and to be now entirely extinct in both those localities. White's specimen was given to the Museum of Sir

Ashton Lever, whence, on the sale of his collections in 1807, it was purchased for the Imperial Cabinet in Vienna, where it now is. Herr Von Pelzeln has described it as a species of *Notornis*—(*N. alba*). It was therefore a second species of *Notornis alba* that Professor Newton considered our bird to be. Mr. Rowley in his *Ornithological Miscellany*, after re-investigating the question, came to the conclusion that our specimen did not belong to the genus *Notornis*, but to *Porphyrio*, and described it as a new species, *P. stanleyi*, in honour of its former owner. He suggested at the same time that it might after all be but an albino of the common Purple Water-Hen of New Zealand (*Porphyrio melanonotus*). To that species it has been relegated by the most recent authority, Dr. Bowdler Sharpe, in the XXIIIrd Volume of the *Catalogue of the Birds in the British Museum*, under which *P. stanleyi* appears as a synonym. The facts depended upon by Mr. Rowley, who, if he did not inspect the bird personally, as I should presume he did, at all events sent Mr. J. G. Keulemans, the distinguished ornithological artist, to Liverpool for the purpose of figuring the bird and taking its dimensions, have been somewhat modified by the more accurate examination of the specimen which the present opportunity has rendered possible.

The puffiness and bagginess of the legs mentioned by Mr. Rowley as a sign of the bad state of the skin when it was mounted, was not due to decomposition, but solely to the unequal stuffing, rudely sewn up, by which the tibiæ, which had been removed with the carcase, were replaced.

The following measurements, which have been taken repeatedly and with the utmost care, differ somewhat from those taken by Mr. Keulemans on Mr. Rowley's behalf. I have not recorded the 'total length' of the specimens as this measurement is very deceptive, being obviously dependent on the manner in which the bird was skinned, the make of the skin, and the amount of stretching to which it has been subjected :—

	Wing.	Culmen and Frontal Shield.	Tarsus.	Mid-Toe and Claw.	Claw of Mid-Toe.	Hind Toe and Claw.	Claw of Hind Toe.
1. *Porphyrio stanleyi* -	9·0	2·44 (*Corneous sheath gone*).	3·0	3·19	·625	1·50	·62
2. *P. melanonotus* (from which wing bones (A) have been extracted to be measured. Length of skin about 18 in.).	10·88	2·18	3·75	4·56	·87	2·0	......
3. *P. melanonotus*, Booby Id (*Coppinger*) ; *fide* Sharpe.	9·80	......	......	3·70	......	......	......
4. *P. melanonotus*, Tasmania, from which bones (B) were extracted to be measured.	10·25	2·37	3·65	4·0	·68	1·87	......

	Wing.	Culmen and Frontal Shield.	Tarsus.	Mid-Toe and Claw.	Claw of Mid-Toe.	Hind Toe and Claw.	Claw of Hind Toe.
5. *Notornis mantelli.* (Length 20 in.), *fide* Sharpe.	9·0	3·20 3·02	3·70	3·70	......	......	......
6. *Notornis alba** - -	4·92	3·02	3·24	3·95	·79	1·88 2·19	·45 ·75

I fail to quite comprehend Mr. Rowley's remark that the figure of his *Porphyrio stanleyi* is "quite different from *Notornis*"; for the specimen as stuffed presented a remarkable likeness to the figure of *Fulica alba* in White's *Journal.*

In comparing *Porphyrio stanleyi* with *P. melanonotus* :—

One point is very obvious, that the leg and toes are very different; they are unlike those of any specimen of *P. melanonotus* in the large series with which I have compared it;

The above measurements show that in *P. stanleyi* the length of the middle toe without the claw—as the measurement is evidently made by Mr. Keulemans—instead of being "equal" to the tarsus, as recorded by Mr. Rowley, is shorter than it by ·4 inch, and thus agrees with *P. melanonotus* and *N. alba* in this respect;

The wings are soft and rounded; the wing coverts are distinctly more elongated; the feathers on the back are thick, softer, and uniformly longer (exceeding them by half an inch in length, and extending well down on the tail);

The primaries are short, but still exceed the secondaries in length by 1·8 inch. The first primary is the shortest; the third (slightly the longest), the fourth, and the fifth are sub-equal; the sixth, seventh, and eighth are in succession slightly shorter than their predecessors. The primaries are broader at the tips and distinctly less pointed, and altogether softer than in *P. melanonotus*;

The hind edge of the frontal shield (without its horny sheath) extends to about $\frac{1}{16}$ inch behind the posterior margin of the eye.

Comparing with *Notornis mantelli* :—

The scutellæ of the tarsus in *P. stanleyi* are longer and fewer;

The hind toe is considerably longer, judging in both those respects from the Plate by Keulemans in the *Transactions of the Zoological Society of London*, vol. iv., p. 74;

The amount of feathering on the tibia differs also in not descending so near to the joint.

Comparing with *Notornis alba* :—

N. alba.	*P. stanleyi.*
Middle toe [without claw] shorter than tarsus (*fide* Rowley).	Agrees.

---

* For these dimensions of *N. alba* I am greatly indebted to Dr. Hellmayr, who has very kindly re-measured the bird for me, and to Professor Brauer, Director, of the Imperial Zoological Museum in Vienna, who forwarded them to me, and to both of whom I beg to return my hearty thanks.

N. alba.	*P. stanleyi.*
Hind toe short.	Hind toe longer than in the figure by Pelzeln and of *N. mantelli* by Gould; but agrees with that of *N. alba* in White's *Journal* by Miss Stone, on the accuracy of which "the public may rely with the most perfect confidence," and shorter indeed, as the actual measurements just taken for me by Dr. Hellmayr show.
Frontal plate goes behind the eye.	Agrees.
Feathers of wing soft.	Agrees.
Said to be flightless.	Probably non-volant also, judging from the measurements of wing-bones given below.
Secondaries "longer than primaries" *fide* Rowley.*	Primaries longer than secondaries. Pelzeln's figure, however, shows primaries slightly longer than the secondaries.
Not as heavy in body as *Notornis mantelli.*	Agrees.
Sharp spur on bend of wing (*Pelzeln*); "shoulders spined"; "furnished with a small crooked spine" (*White*).	Has sharp "spine" directed backward in direction of quills; but not at "bend" of wing, or directed forward or so curved, or as long as in White's Plate. This "spine" is the claw of the bastard wing.
Colour entirely white. Some differ in having "bright blue between the shoulders and spotted on the back with the same" (*Latham*). "The cocks' wings are beautifully mottled with blue" (*Latham*).	Agrees in general white colour, and in being spotted with blue feathers on the back; has a blue sheen all over.
The sides of the head round the eyes are reddish, very thinly sprinkled with white feathers.	The sides of the head with stiffish, rather sparse, feathers.
The scutellation of tarsus in Pelzeln's figure shows small and numerous scales.*	Scutes longer and fewer (eleven in number).
Feathers on tibia stop short by some distance from joint.	Agrees.

In the present condition of our bird, it can now be seen that the top of the head as far back as the occiput was entirely black; that the feathering on the regions above and in front of the eyes, on the throat and between the rami of the mandible, and on the sides of the head back to behind the ear-coverts, consisted of numerous short plumes (white plumes and black plumes the latter with a sheen of blue, intermixed, so as to produce a mottled appearance) quite covering these regions, but not so densely that it might not be possible in life to have seen the skin on the side of head through them. On the occiput these small plumes are considerably longer—nearly twice—than those elsewhere on the head. Stretching from directly behind each eye round the occiput to its fellow of the other side, it would appear that there had extended (though not with absolute certainty) a pure white band. The character of the plumes on the top and sides of the head is very different from those in the same regions in any species of *Porphyrio* which I have examined. In *P. melanonotus* the head is covered with an abundant close, short, velvety plumage, each plume soft and fluffy. In *P. stanleyi* the plumes are ⅓ inch in length, and have a distinct stiffish mid-rib giving off from each side opposite rays openly arranged, very similar in appearance to the plumes seen in many birds only round the auricular opening. There occur also on the back of the head one or two of what seem to be incoming plumes, as if a moult had been in progress in the head region; but they are so few that it is difficult to come to any certain decision on this point. There is no sign of moult on any other part of the body. The rest of the neck being entirely denuded of feathers, it is impossible to gather any idea of what was the colour or character of its covering.

---

* I regret that I omitted to draw Dr. Hellmayr's attention to these points.

Mr. Rowley believes that our bird was young, and that it was volant. The bones extracted from the wing afford some evidence on these points.

The ulna and radius on both sides are symmetrical, and they present no indications that the terminations of the bones were in a cartilaginous condition. The osseous tissue is dense and compact, and the articular surfaces are sharp and perfect in outline with no signs of epiphyses. The bird may have been young, but it would seem to have been adult. That it was volant I somewhat doubt; for the wing bones are short and weak (as is the fragment of the head of the humerus) in comparison with those of *P. melanonotus* taken out of the two smallest specimens in the Museum, viz., No. 2 (A) and No. 5 (B) in the list given above on p. 64, as seen by the following table:—

	P. melanonotus. A.	*P. melanonotus.* B.	*P. stanleyi.*
Ulna - - - - - - - - -	3·25	3·19	2·47
Radius - - - - - - - -	3·0	2·94	2·31
Width of outer space - -	0·19	0·19	0·19

The general facies of the skeleton of this portion of the wing resembles that of *Notornis hochstetteri*, with a photograph of which by Professor A. B. Meyer I have compared it. The interspace between the ulna and radius is at its widest part equal in all three specimens as seen above. In *P. stanleyi* it is therefore proportionately wider for its length.

Of the feathers on the back some are brownish, some nearly blue, others greyish-blue. On the lower back there are also a few dark feathers, and across the scapulars and wing coverts there is a more or less symmetrical band of bluish feathers, some of them tipped with a pure white Λ. The mid-rectrices are blue. Over the whole body, now that it has been carefully washed, there is a conspicuous sheen of blue.

According to White the *Notornis alba* of Norfolk and Lord Howe's Islands when young was "entirely black, and from that becomes bluish-grey, and afterwards pure white"; and "none of them could fly."

The above table of comparisons between *Notornis alba* and *Porphyrio stanleyi* shows that the similarity between the two birds is very considerable. The other points on which they differ from each other may perhaps be the result of imperfect figuring or description, and would probably disappear on a comparison of the actual specimens. It seems to me highly probable that the two birds belong to the same species—either both are specimens of *Notornis alba* or both are *Porphyrio stanleyi*. It is difficult to bring oneself to believe that they are albinos of *P. melanonotus*, from which our bird differs so conspicuously in the form of its leg and toes. I rather incline to the belief that both are specimens of *N. alba*. Our bird has a small and weak wing; but the measurements of *N. alba* show a far greater reduction of the wings in it than in *P. stanleyi*. The latter bird was probably a poor flyer, if not altogether non-volant; and, though adult, it may be young enough to be still in intermediate plumage, the head and neck still showing indications of the not fully discarded black plumage which White tells us it possessed in its younger years.

PRESENTED
31 MAY [illegible]

The Bulletin

of the Liverpool Museums,

Published by Authority of the Museums Committee of the Liverpool City Council, under the Editorship of the Director of Museums (**H. O. Forbes, LL.D.**),

Is intended to make known the contents of the Municipal Museums—the Derby (or Biological) Museum, and the Mayer (or Archæological and Ethnographical) Museum,—by publishing the results of the investigations carried on in the Laboratories attached to them, and the observations made on the animals living in the Aquarium.

It will be published at irregular intervals; but the aim of the Director will be to issue one volume of four parts every year. It will be illustrated as occasion demands by coloured plates, engravings, and process blocks.

The "BULLETIN" is published at the Museums, and by Messrs. HENRY YOUNG & SONS, of 12, South Castle Street and 23, Parker Street, Liverpool, at 2s. 6d. net per number (per post 2s. 8d. net), or to subscribers at 8s. net per volume (per post 8s. 8d. net.), payable in advance.

Volumes I. and II. are now ready, illustrated with **Hand-Coloured Plates**, and numerous engravings throughout the text, cloth, extra, top edges gilt, 12s. 6d. net, per post 12s. 10d. net, per volume.

In the Press.

The Natural History
OF
Sokotra and Abd-el-Kuri.

Edited by H. O. FORBES, LL.D.

This volume contains the Report of the Results of a Scientific Expedition made to Sokotra and Abd-el-Kuri in 1898-99, by W. R. Ogilvie-Grant, of the British Museum, and Dr. H. O. Forbes, Director of Museums to the Corporation of Liverpool.

The volume will be illustrated with about 30 fine coloured plates, some of them beautifully Hand-Coloured, and numerous engravings throughout the text, illustrating the Scenery, Natives, Ethnology, Geology, Flora and Fauna, &c., of the Islands.

The Islands lie near the East Coast of Africa, a little distance off Cape Guardafui. The extensive collections made by the expedition form the basis of the Report, but the volume is practically a

MONOGRAPH OF THE ISLANDS,

and contains all that is known of their History, which dates back to a very early period. Indeed, Sokotra may be one of the Islands from which the Monarchs of Ancient Egypt derived their coveted Frankincense and Myrrh.

The work contains a narrative of the Journey, and detailed descriptions of the collections.

Among the contributors to the Report are :—

Professor I. B. BALFOUR, F.R.S.
G. A. BOULENGER, F.R.S.
MALCOLM BURR, F.E.S.
O. V. DARBISHIRE, B.A., Ph.D.
W. E. DE WINTON, F.Z.S.
HENRY O. FORBES, LL.D.
C. J. GAHAN, M.A.
Lieut.-Colonel GODWIN-AUSTEN, F.R.S.
W. R. OGILVIE-GRANT.
Professor J. W. GREGORY, D.Sc.
Sir GEORGE HAMPSON, Bart., M.A.
E. M. HOLMES, F.L.S.
G. W. KIRKALDY, F.E.S.
W. F. KIRBY, F.L.S.
R. I. POCOCK.
E. A. SMITH, F.Z.S.
Right Hon. Lord WALSINGHAM, F.R.S.

Probable Price, 30/- net.

The book is issued under the Authority of the Museums Committee of the Liverpool City Council, and will be published by Messrs. Henry Young & Sons, Liverpool.

SUBSCRIBERS' NAMES RECEIVED.

13